ENGINEERING NEWS-RECORD

Improved machines are speeding paving (p. 30)

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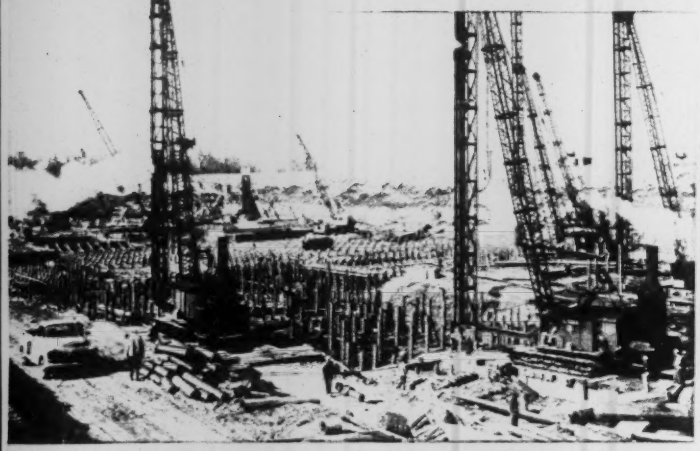
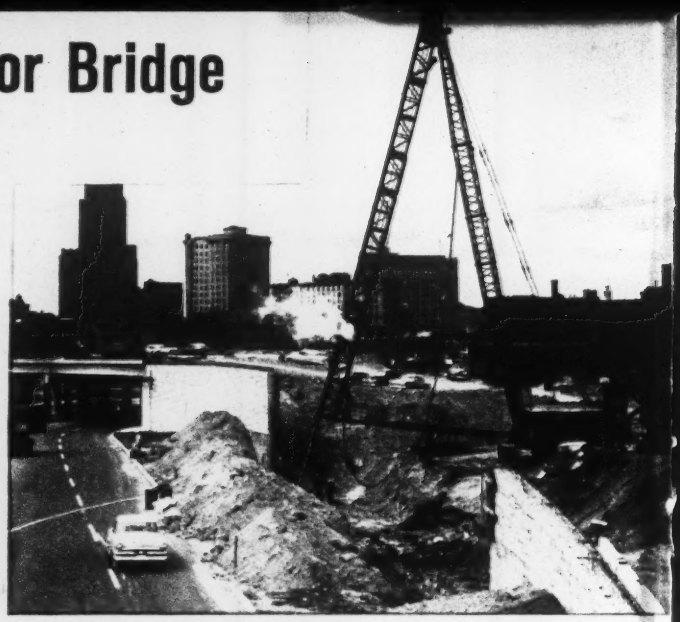
For Building or Bridge



BUILDING. These Armco HEL-COR Pile Shells will provide support for the new Memphis Municipal Power Plant. C. L. Guild Construction Co., Inc., is doing the driving with the Cobi mandrel.



BRIDGE. Here is the start of a bridge foundation for the new North-South Freeway, Providence, R. I., with Armco HEL-COR Pile Shells being Cobi-mandrel driven by C. L. Guild Construction Co., Inc.

Design a STRONG FOUNDATION with Armco HEL-COR Pile Shells

For many bridge or building foundation-design conditions, Armco HEL-COR® Pile Shells can offer you important advantages.

Because their light weight speeds handling and they are extremely straight and of uniform diameter—HEL-COR Pile Shells are *quickly mandrel-driven to the required loading.* With the wide, flat, capped ends of Armco Pile Shells—you get maximum support.

Since Armco Pile Shells are supplied in lengths up to 64 feet and random cut-off lengths may be field-welded together for other piles—you can make *substantial savings* during installation.

What is HEL-COR?

Armco HEL-COR Pile Shell is a continuous lock-seam corrugated metal pipe made on automatic machines. It is formed with helical corrugations, and the pipe is joined with a single permanent lock seam that follows the spiral in the valley of the corrugations. Lock seam can be welded, if desired.

This pile shell can be mandrel-driven, used as drop-in pile shells, or as the top portion of composite piles. Nominal diameters range from 8⅝ to 22 inches, and gages from 14 to 18.

* * *

Armco HEL-COR Pile Shell is just one of the more than 30 Armco metal products for highway, railway and industrial applications. Use coupon for complete information on Pile Shell. Write us for data on other products. Armco Drainage & Metal Products, Inc., 4268 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

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He tested them all

...then bought an Allis-Chalmers HD-6G tractor shovel

Don Nourse, a leading swimming pool contractor, rented tractor shovels until he found one that appealed to his operators, his sales force and company officials. Choice of all concerned—the HD-6G.

HD-6G
72 net hp
1½-yd bucket
19,600 lb

A heaping 1½-yd bucket comes out of the excavation for a 25 x 60-ft pool. There was time before lunch to start work on a wading pool.

Here's why the HD-6G is everybody's favorite at Fiesta

Talk first with Don Nourse, President of Fiesta Pools, Southgate, California, to find how the Allis-Chalmers HD-6G came to be selected as Number 1 production machine. Don's company is the nation's second largest swimming pool builder. Don tells how Fiesta rented tractors before buying their own unit. After trying them all, he's convinced there is nothing available to touch the HD-6G for excavating pools.

Jack Sweitzer runs the HD-6G And he's convinced it's the best machine he's ever been on. Jack now digs an average of two pools a day—and that's *double* the capacity of any excavating equipment they used in the past.

Roy M. Pederson, Vice-President responsible for sales at Fiesta, will tell you their new HD-6G has already added to company sales volume because of its ability to increase production.

Robert E. Franks, Vice-President and Production Manager, says their HD-6G is the first of several purchases of Allis-Chalmers machines. In his opinion, it has proved itself a great asset on their type of operation.

If you're not already using an Allis-Chalmers tractor shovel, you'll be convinced the HD-6G can do the best job for you when your dealer shows you one—*in action—on your job.* Call him today! Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

Look ahead...*move ahead*
...and stay ahead with ALLIS-CHALMERS

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Placing of Amdek hollow box girders by means of *Richmond* Lifting Inserts with loads spread and equalized.

Lifting Inserts for Beams & Girders

Increased use of Prestressed Beams and Girders has led to the development of special inserts for lifting these units from casting beds, and placing them in their final position on the job.

Richmond Screw Anchors can be used where the mass of concrete provides sufficient distribution in width and depth to develop the strength.

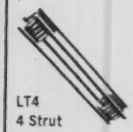
Tyloops are used where the width and depth are sufficient for proper anchorage, where the unit has to clear reinforcing steel or other obstructions. Tyloops can be made in special shapes.

Extended Coil Lifting Tyscrus and 4 Strut Lifting Tyscrus are especially designed for thin walled Hollow Girders where the load distribution must be placed in the compression area of the prestressed girder.

All of these Lifting Inserts have actual ultimate strengths of at least twice their working loads in concrete at required lifting strength.

SCAB Richmond Screw Anchor & Bolt Assembly.

LT2E Lifting Tyscru with Extended Coil



LT4 4 Strut Lifting Tyscru

LE Lifting Eye Bolt

TL4F 4 Strut Tyloop Flared

For more information about these and other Richmond Lifting Inserts send for the Richmond Data Book on Lifting Inserts. And if you have any specific concreting problems ask us about them.

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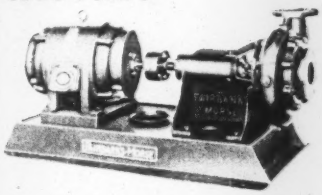

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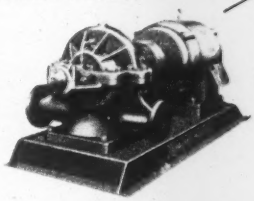

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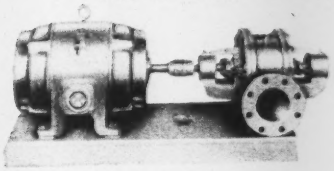

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hot and cold liquids
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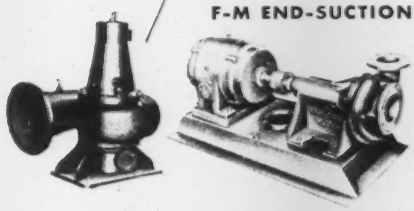

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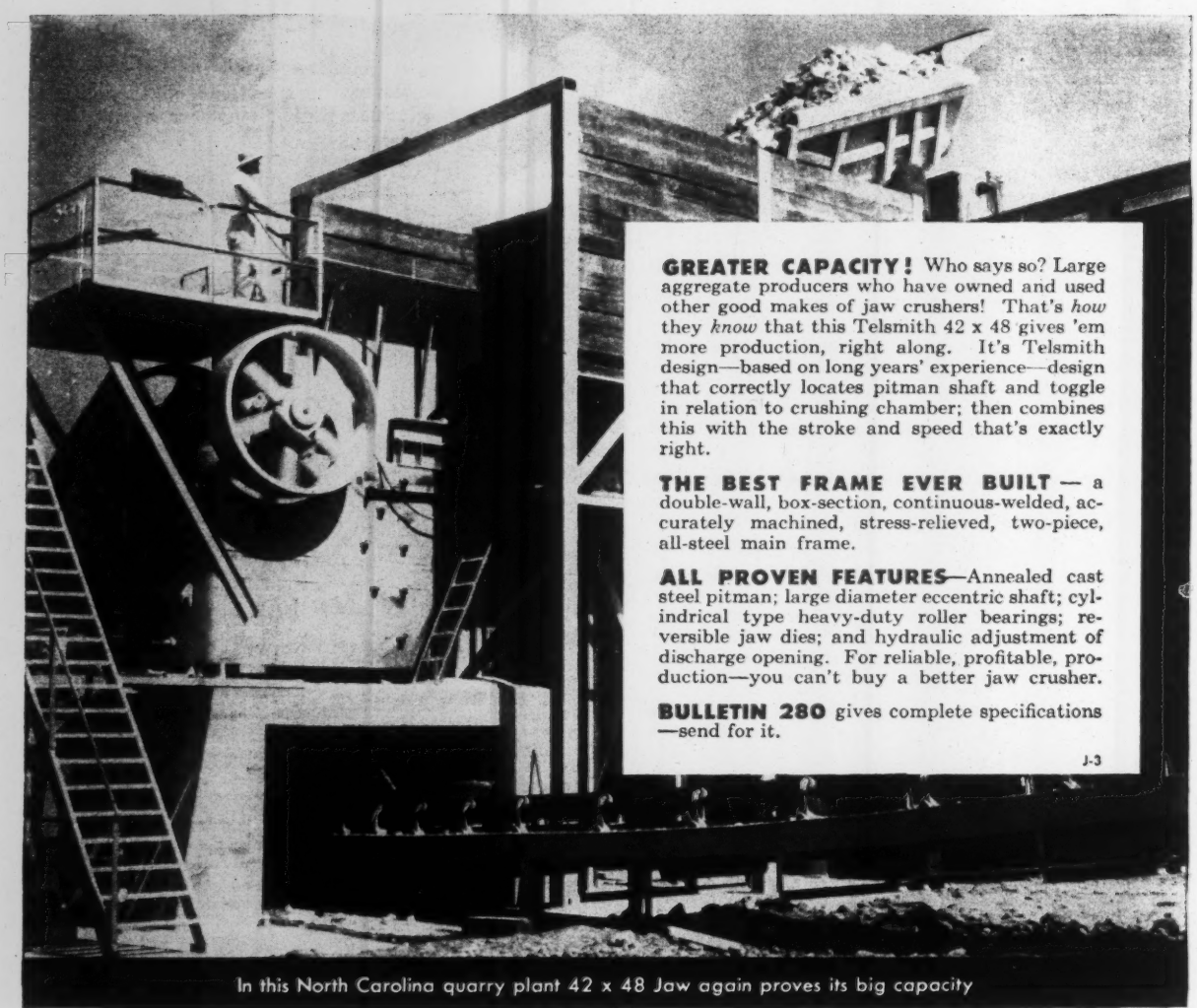
42" x 48" JAW CRUSHER

with welded steel frame



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J-3

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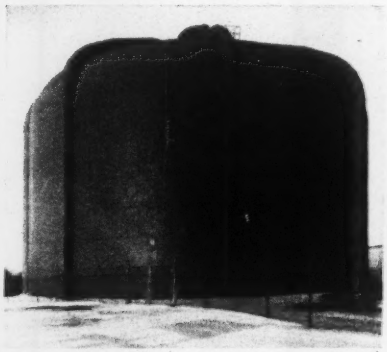

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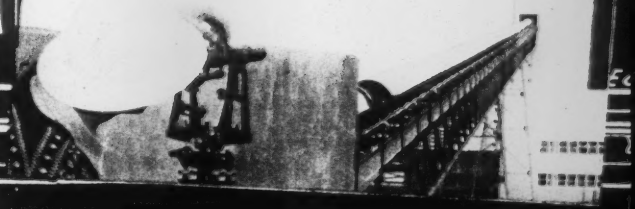

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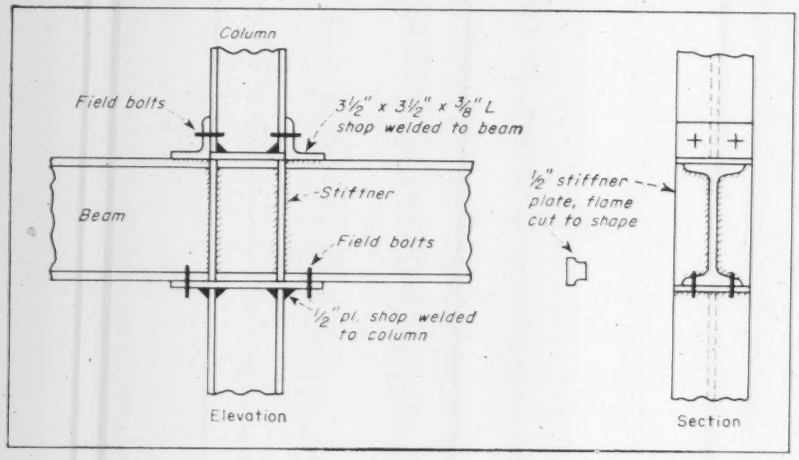

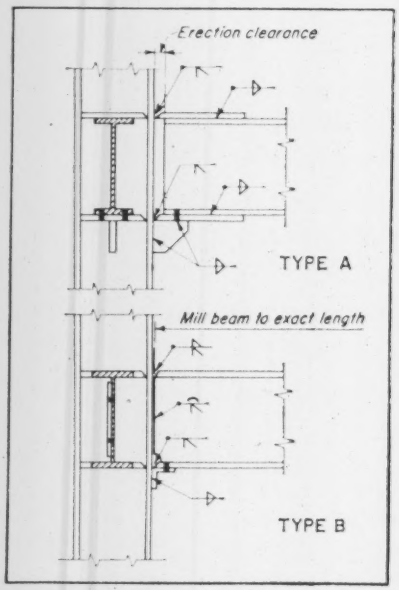

Beam-Column Connection

SIR—Mr. W. A. Finne's letter (ENR Jan. 2, 1958 p. 12) questioning beam-column connection details raises a point that has never had a thorough discussion in the literature, in spite of its obvious practical significance. Though not speaking from a position of experience in fabricating, the writer would like to make a few observations.

As well as having the required strength and rigidity, beam-column connections must meet three practical requirements.

(1) support must be provided for the beams during erection and before final welding,

(2) variations in dimensions must be accommodated, and

(3) the final welding must be readily completed.

With single-story welded structures, fitting-up is not important, and the other requirements can be met by fabricating frames individually on the ground. In this case direct butt welds are invariably used and detail metal avoided. With the multistory frame, however, all three points are important. Very rarely is it possible to prefabricate entire frames (as done so successfully for the Quarry Hill Flats in Leeds, England in 1937 when eight-story, two-bay frames were lifted as single elements), and the more elegant solution designated as "B" by Mr. Finne has not often been used. Instead the practical requirements noted above, coupled with a passion for "detail metal" that is a hangover from riveting practice has led to the wide use of the untidy joint labeled "A" by Mr. Finne.

Although the joint "A" can be made as strong as required, it is immediately obvious that it requires roughly twice as much welding as the simpler connection. It is presumably the expense of joint "A" and the difficulty of joint "B" that have discouraged welding in multistory buildings in the U. S.

The answer would seem to lie with fabricating experience. If joint "B"

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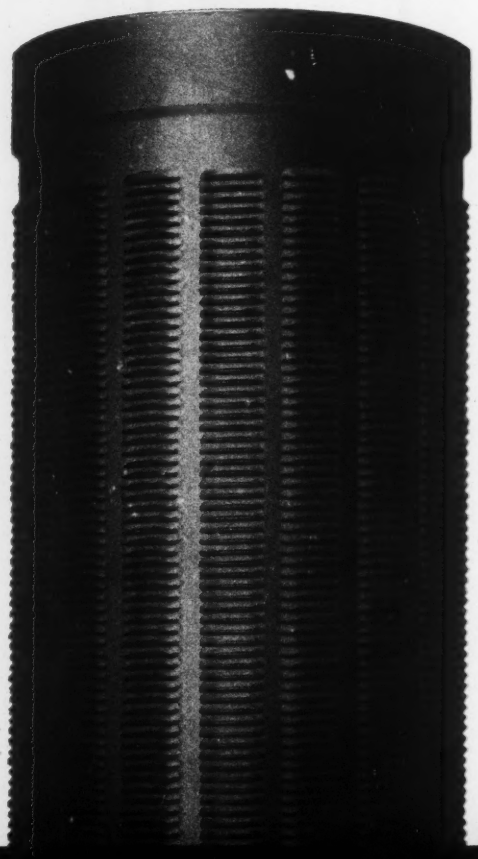

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can be made without particular difficulty then it will be both more efficient and less expensive. That joints of this type are being used less infrequently these days shows that progress is being made.

Another important point that might be mentioned is the functional nature of a rigid beam-column connection. Mr. Finne's connection apparently is required for wind moments in a nominally "simple" skeleton frame. In both this case and that of a fully rigid framework, designed either on elastic or plastic theory, full rigidity is essential at the beam-column connection. Although we are accustomed by long experience to using beams in single-span lengths and columns in two or three-story lengths, often it may be advantageous to reverse this practice and use columns in single-story lengths with beams continuous over several spans. For full continuity there is generally less moment to "splice" in the column, and there is great advantage often in having continuous beams even when column connections are not rigid. The illustration shows a connection where no moment transfer was required from column to column (ENR April 11, 1957, p. 59). Had such continuity been required, it would not have been too difficult to develop.

D. T. WRIGHT
Asst. Prof. of Civil Engineering
Queens University
Kingston, Ont.

•

Sir—In my opinion type "A" is a more practical connection in most cases for the following reasons:

1. All welds are downhand in type "A".

2. On a 14 in. wide-flange column the allowable mill tolerance on depth is plus or minus ½ in., which could mean a possible extra ¼ in. weld metal all around or, worse, beams not fitting between columns, when type "B" is used.

3. Whether beams are milled (questionable whether necessary), saw cut or flame cut, it is more expensive to cut to length for type "B" connection than type "A."

There are methods other than "A" or "B," but type "A" is a good all around connection and one at which fabricators will not frown.

W. E. POOLE
Boyle, Wamsley & Poole
Tampa, Fla.

Poles vs Fender Fins

Sir—The item "Grass vs Economy" (Jan. 9, p. 12) prompts a diverse expression.

For generations the typical urban street or highway has been dedicated to public use. Not too long ago, when the pedestrian was prime, walkways along tree-studded streets were pleasant and a mark of civic pride. Bicycle cinder paths were followed by pavement. Now, by eliminating grass plots and trees (and poles), the thoroughfares can be made more useful—for greedy automobilists.

For generations people carried water, slop, fuel and communications over the public thoroughfares. Public utilities took over these functions with water mains, sewers, gas, power and public transportation. Now, because automotive vehicles pay taxes into the highway construction funds, the pedestrian and his utilities are nudged from the thoroughfares.

If and when the width of right-of-way for a street or highway is fixed, that right-of-way should recognize and provide space for public utilities. If highway aesthetics dictate that expressways should be beautiful, the automotive beneficiaries should pay the whole cost according to the "last man through" railroad rule. Why should utilities and their patrons subsidize the highway programs by being forced to vacate public thoroughfares?

"Obviously, highways alone are not the answer—" (ENR Feb. 13, 1958, p. 157).

Grass plots, trees (and poles) may for generations to come be more acceptable and economical than blooming fender fins.

M. O. ANDERBERG
Chief Engineer
Seattle (Wash.) Transit System

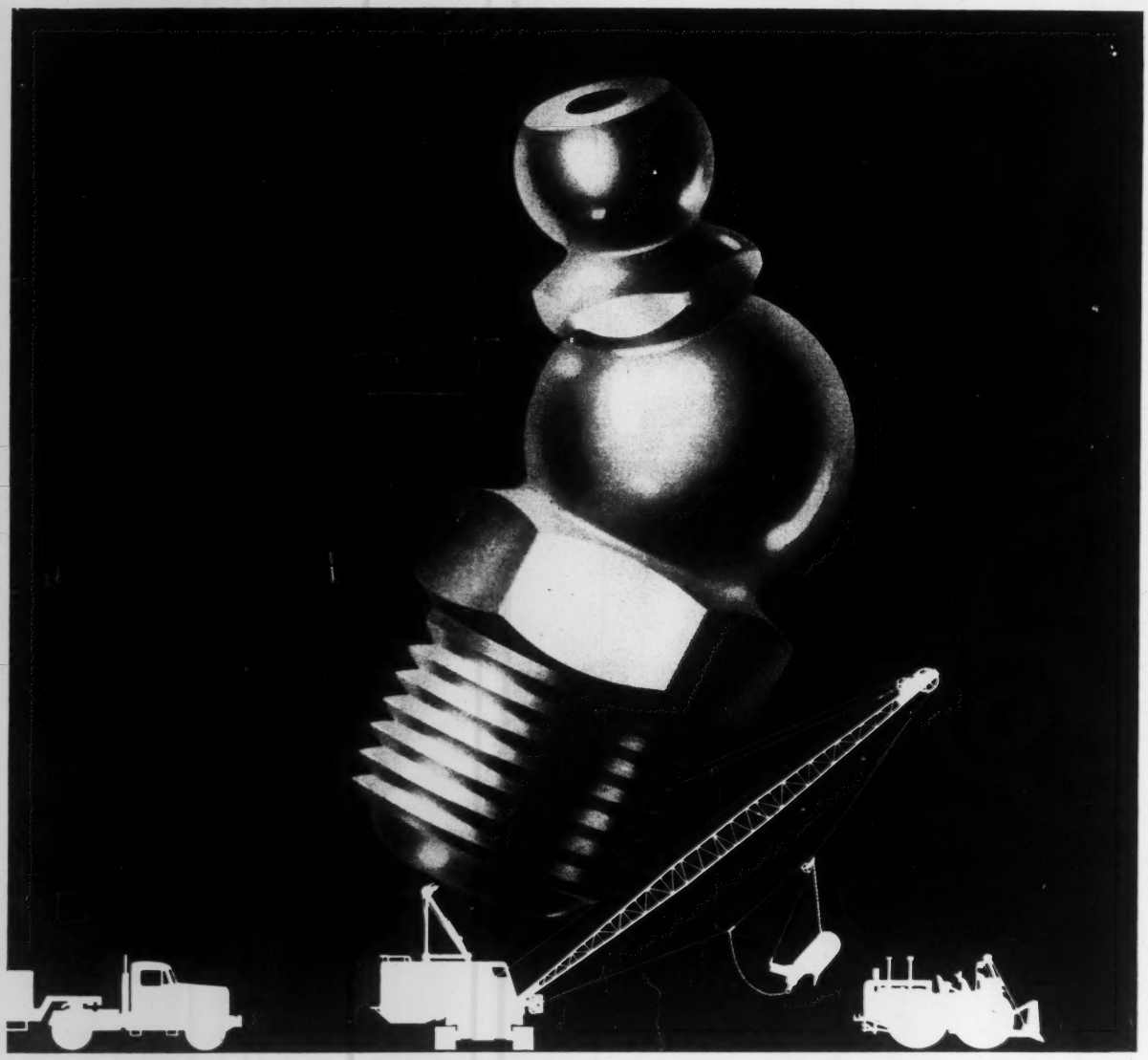
Two "Longest" Bridges?

Sir—Your answer to reader Howard F. Clark (ENR Mar. 27, p. 00) seemed to settle the question of the longest suspension bridge by compromise, stating of the Golden Gate and Mackinac bridges that each is the longest in its respective way.

The Golden Gate Bridge, with its 4,200-ft main span, still stands today as the world's longest single bridge span, not only of the suspension type but also of any type.

The 8,614 ft quoted for the length of the Mackinac Bridge from anchorage to anchorage includes, in addition to the main span and two side spans, 944 ft of flanking truss spans in no way supported by the suspension system, as well as 270 ft of length in the remote anchorages themselves to the farthest extremes of their concrete encasements (ENR Oct. 31, 1957, p. 24).

Applying such overall measuring to other suspension bridges brings to mind



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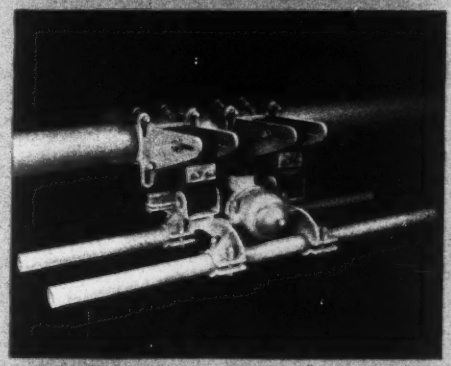

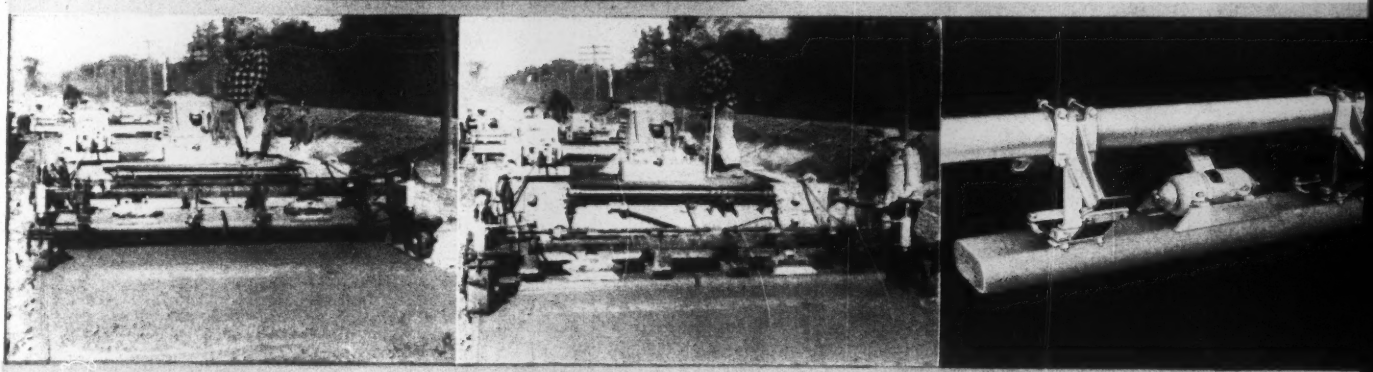

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. . . Reader Comment

the West Bay Crossing of the San Francisco-Oakland Bay Bridge. This bridge has a stabilizing anchorage at the center of the crossing which serves only to take unbalanced live load cable pull from the two halves of the suspension bridge, and which would not suffice as a complete end anchorage for one of the loaded halves. This crossing is, therefore, one complete multiple suspension bridge from one end anchorage in San Francisco to the other end anchorage on Yerba Buena Island. The overall length from farthest extremes of concrete housings of end anchorages, corresponding to the quoted length for the Mackinac Bridge, is 10,594 ft. This length does not take advantage of another 130 ft, more or less, of horizontal distance to which the anchor grillages are extended into the rock of Yerba Buena Island, but this could be done if the most extreme superlative were desired.

There may be other longer suspension bridges than the West Bay Crossing of the San Francisco-Oakland Bay Bridge, but in any event it does appear certain that a slight error was made in including the Mackinac Bridge, with all due respect for its true greatness, as one of the two longest suspension bridges in the world.

HOWARD F. TOPPING
Berkeley, Calif.

Field Inspector Left Out

Sir—It has been brought to my attention that in my article, "Flat Plate Floors Gain Time and Space," (ENR April 24, p. 51) credit should have been given to William R. Watt, who continued the field inspection of the structural work after James Sloan left the architect's employ.

JACOB FELD
Consulting Engineer
New York, N. Y.

CALENDAR

Western Association of State Highway Officials, 37th annual meeting, Hotel Utah, Salt Lake City, Utah, June 3-6.

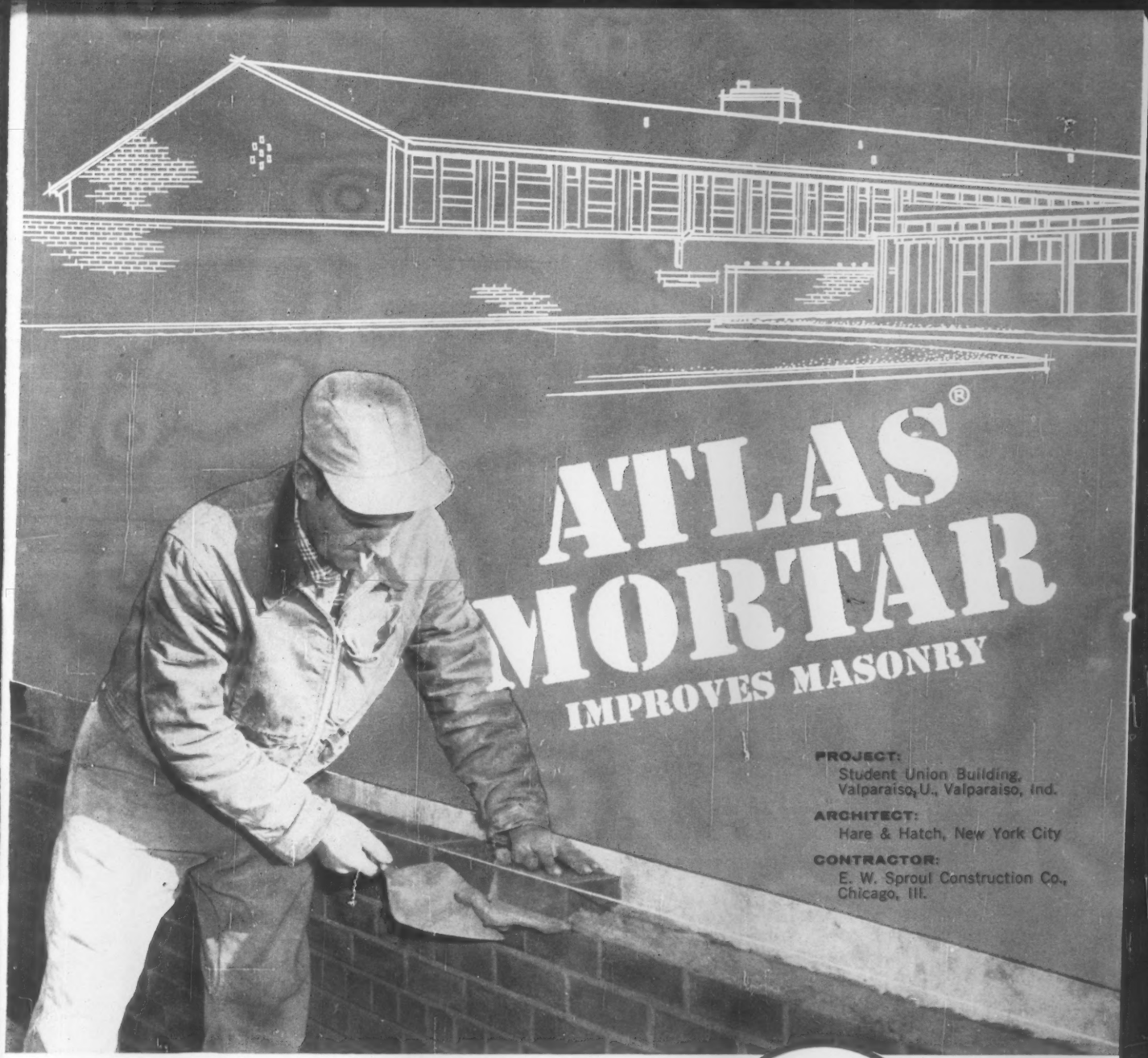
National Society of Professional Engineers, annual meeting, Chase-Park Plaza Hotel, St. Louis, Mo., June 11-14.

American Society for Testing Materials, 61st annual meeting, Hotel Statler and Sheraton Plaza Hotel, Boston, Mass., June 22-27.

American Society of Heating and Air Conditioning Engineers, semi-annual meeting, Pick-Nicollet Hotel, Minneapolis, Minn., June 23-25.

American Society of Civil Engineers, Multnomah Hotel, Portland, Ore., June 23-27.

American Institute of Architects, annual convention, Hotel Cleveland, Cleveland, Ohio, July 7-11.



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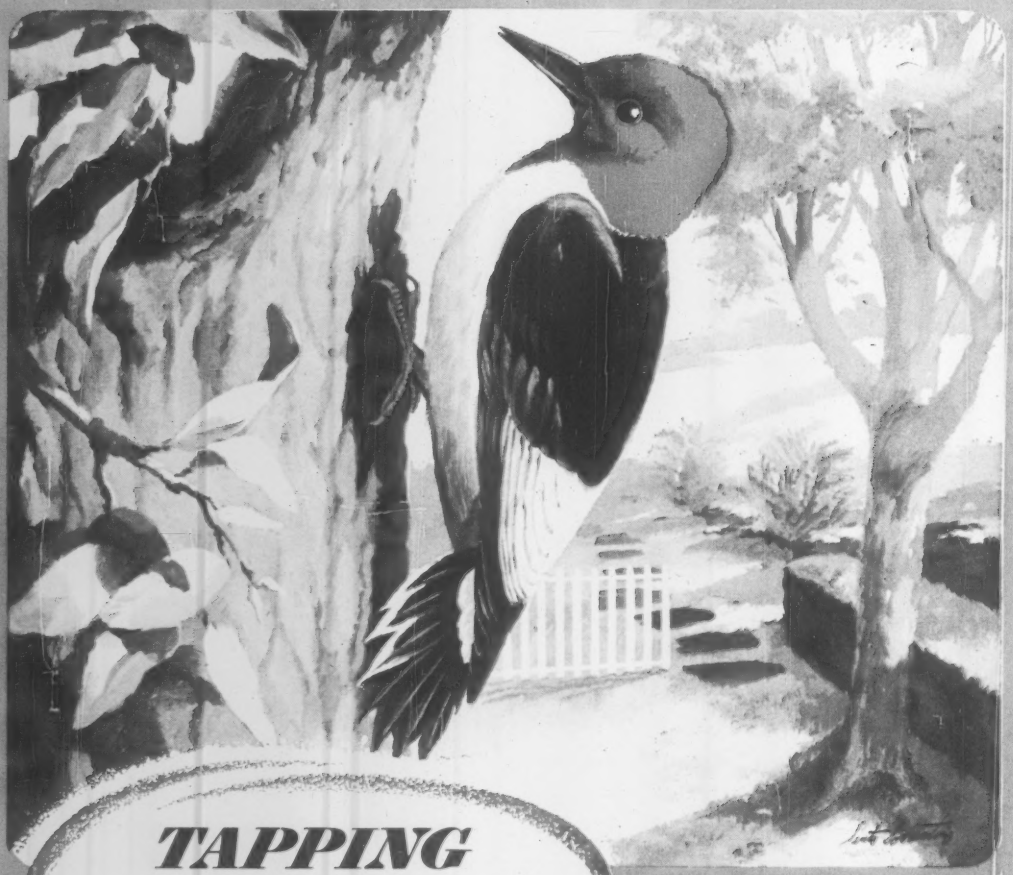

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

LEVITTOWN III COMING—Mass-builder William J. Levitt this week made it official: He's about to start work on a $250 million housing development in Willingboro Township, N. J. The new project will be called Levittown, like two earlier Levitt enterprises, which transformed large farm tracts on Long Island, N. Y., and near Morrisville, Pa., into full-blown communities.

MORE PLANS FOR CHANNEL TUNNEL—The dream of a tunnel between England and France has been revived again—this time on a mattress of $560,000. That's how much money the Groupement d'Etudes du Tunnel Sous la Manche is prepared to spend this year on physical and economic feasibility studies for the project. Physical investigations are expected to start this summer with clearance of shafts started more than 75 years ago near Calais, France.

CEMENT WORKERS SETTLE—Threat of a nationwide strike in the cement industry declined last week. Ideal Cement Co., of Denver, second largest in the U. S., and United Cement, Lime and Gypsum Workers International Union have signed a new one-year contract. It grants what amounts to a 10 cent hourly wage hike: an 8 cent boost retroactive to May 1 and liberalized pension benefits. The agreement may set a pattern for the rest of the industry. Over 20,000 cement workers have been working on a day-to-day basis since May 1 when some 90 contracts expired.

TALLEST-TOWER PERMIT SOUGHT—For the fifth time, station WHAS-TV in Louisville has asked the Federal Communications Commission for permission to build what would be the world's tallest TV transmission tower (and the tallest man-made structure). The station wants to erect a tower 1,859 ft high to replace its present 600 ft tower. Tallest in the world at the moment is the 1,610 ft TV tower of Station KSWS, Roswell, N. M. Earlier pleas by the Louisville station have been turned down on the grounds that the tower would threaten air traffic.

SUPER SHOPPING CENTER—Latest revision of plans for a shopping center astride New York, New Haven & Hartford Railroad tracks in New Rochelle, N. Y., brings the price tag to $41 million. Architect Victor Gruen Associates, New York, discloses the structure will have 24 levels, housing a department store, a 100 room hotel, rail and bus terminals and parking space for 5,200 autos. Gold anodized aluminum grille will shade the glass enclosed, 15 story office building tower. Cylindrical elevators will be glass enclosed. No contractor has been named, but a 1960 completion date is set.

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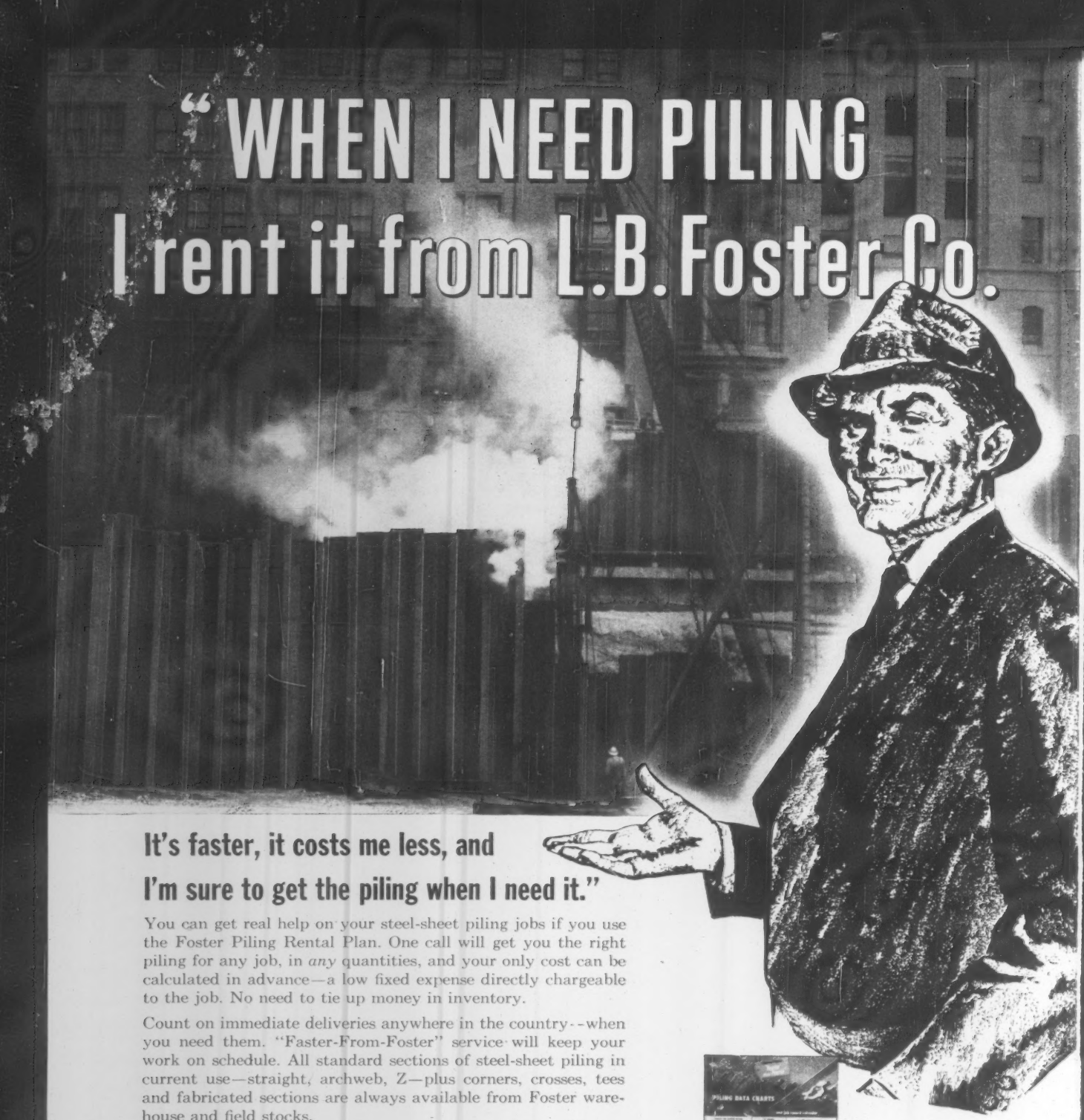

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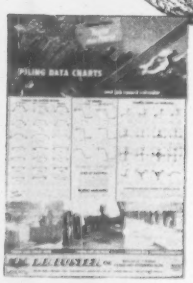

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WASHINGTON OBSERVER

- New FHA funds available
- Lease-purchase recess
- Science Department pushed
- Hells Canyon drive fails

● **Federal Housing Administration will begin a new round of insuring mortgages for home buyers.** A new $4 billion authorization to spur homebuilding was passed by Congress this week.

FHA has been under a bind: Regional offices were working on a day-to-day operation, depending on mortgage payments for its source of new insuring authority. So FHA Commissioner Norman Mason had to give field offices virtually daily approval on applications.

The bind came because the increase in insurance applications was much higher than previous estimates. The government had felt it had sufficient authority through June 10 but applications ballooned so much the credit line was running out.

Insurance commitments zoomed in April and went even higher in May. The drain brought available funds down to a low of $507 million two weeks ago; from then on FHA put in the day-to-day, hand-to-mouth order to regional offices.

No scars will be left by the emergency action. Applications are being processed, and will be signed once the new money is available. Government officials are confident no new starts will be delayed.

● **Some congressmen are urging a new Department of Science and Technology with Cabinet rank. It may get the support of the U. S. Army Corps of Engineers.** Leaders say they are getting bi-partisan support to set up Congressional committees for such a program. First job of the group will be to establish a Cabinet post. The Corps of Engineers reportedly favors the new department idea and is not fearful the Corps would lose its influence if some of its functions were put under the new department.

● **The lease-purchase program is completed for the present.** General Services Administration, successful in awarding 26 jobs to contractors since the recent revival of the program, feels it has run its course for now. Some 12 projects that might have been available for bids, probably will be deferred. **Reason: Increased costs have made remaining projects too expensive;** that is, the costs would be more than 10% higher than estimates approved by the public works committees of Congress.

● **The Hells Canyon project has hit a snag again. It probably kills the federal high dam idea for good,** at least in its present form. The House interior subcommittee rejected the high dam bill, pushed by Rep. Gracie Pfost, of Idaho, killing the project for this session of Congress.

Federal dam proponents may come back next year with a new proposal—a high dam at Nez Perce on the Salmon River. The Federal Power Commission early this year recommended construction of Nez Perce, in turning down the Northwest Power Co.'s application for projects at Mountain Sheep and Pleasant Valley on the Snake River. (Trouble there is, though, that fish interests and conservationists object to Nez Perce on grounds it would destroy spawning grounds.)

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Is Construction Money Lying Idle?

Governing bodies of the nation's communities have fat moneybags in their grasp filled with federal grant and loan cash for various construction activities at the local level. However, for a variety of reasons that include heavy existing debt burdens—and also some procrastination—generous portions of the funds allotted for specific purposes are lying idle.

The programs range from the massive urban redevelopment and community facilities programs to smaller, widely scattered watershed and flood prevention projects under the Department of Agriculture's Soil Conservation Service. The last-named program apparently has been utilized to a fair extent while the urban renewal and redevelopment program has been let drag.

While certain construction funds lie idle, construction costs today appear lower than in many recent months, although they are certain to move higher eventually. And borrowing costs, dropping sharply since the latter part of 1957, have reached their lowest levels in about two years.

Too much delay in starting community projects could be harmful. And there are dynamic forces in other sectors of the economy that could push leaders in state, regional or city government into action on ready projects.

Perhaps the most timely illustration of such forces is the aviation industry, which is only months away from commercial jet plane service. The airlines and the plane manufacturers, both in this country and abroad, are not waiting for the states or communities to develop the perfect facilities to accommodate the multi-jet ships. They have made the announcements of scheduled operations, and one day soon this type of aircraft will scream into some of the major airports in the U. S. (ENR Mar. 20, p. 23).

The demands of shifts in populations geographically and by age groupings will not wait either.

The Investment Bankers Association of America, after studying implications of the population's changing age structure, came to the conclusion that although demand for new public facilities between now and 1965 will be relatively moderate, it will reach explosive proportions after 1965.

The group said that by the late 1960s and 1970s state and municipal governments will face an unprecedented demand for capital improvements. Therefore, planning must be done now in order to be able to meet overwhelming demands after 1965.

But, if this demand for capital improvement is neglected it will later place pressure on the money market of a type that will occur as a concerted demand for both capital and construction. The law of supply and demand will be most strenuously at work jacking up the prices of municipal construction if all needed municipal construction is put off to be done in a population-growth period.

• **Federal influence**—There has been and will continue to be a constant pulling and hauling between municipalities and the federal government as to which government body should assume the responsibility for supplying the needed community services.

At present the local bodies want more help than is available from the federal government—while the present Administration would like to see less participation by the federal government.

Two main targets of the Administration now are urban redevelopment and airport development. President Eisenhower would like to see the two-thirds participation by the federal government in renewal reduced to half, and he wants the airport program discontinued.

State and community officials generally want increased aid, not less. But what appears to be a lack of great drive on the part of the communities to use available federal funds, particularly for urban redevelopment, could be a reason for the Administration's disposition to cut them off.

Now for a look at some of the programs now in operation.

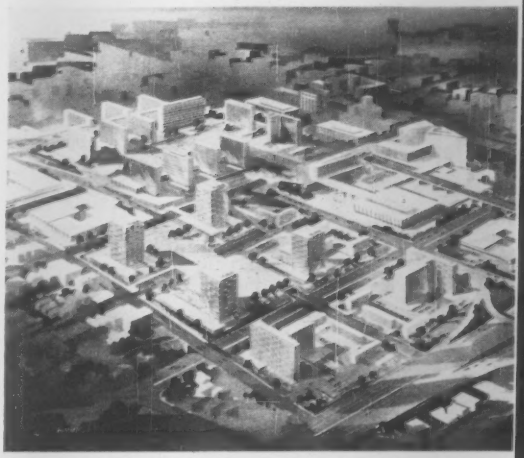
Urban Redevelopment

Available for grant commitments to communities are $1.5 billion. Of this amount $1.1 billion had been earmarked in grant reservations for 540 projects in 328 localities through April 30.

Of these projects, 223 in 148 communities are in execution, including four operating projects that are 100% completed in three localities.

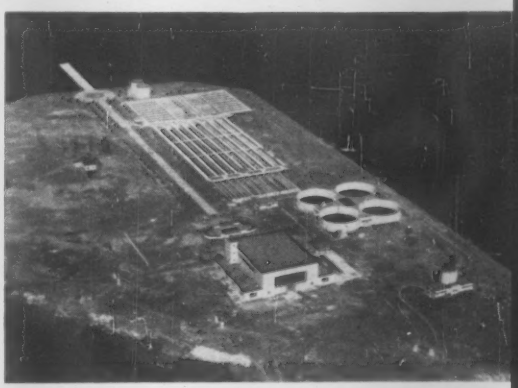
But out of all the funds earmarked, federal funds of only $115 million have been disbursed to 114 of the projects in execution.

(Continued on page 22)



1 For Urban Renewal?

2 For Airports?



3 For Sewage Works?

. . . Money idle?

Some of this slow progress results from a shortage of funds at the local level or a hesitancy to add more debt to already swollen budgets. As pointed out by Patrick Healy, executive director of American Municipal Association, there is a severe limitation on sources of revenue available to municipalities under existing state laws.

Airport Development

The original 1946 act creating this program has been in active operation since 1949 and is scheduled to end this June 30. Under the act, Congress has appropriated $234.8 million, of which $230.7 million actually has been obligated. The remainder is committed to specific projects in outstanding grant offers for work not under contract, as of April 30.

In 1955, Congress passed the Monroney bill which in theory assured municipalities and their airport agencies of a continuing four year program. It authorized a total of $231.5 million for the four fiscal years 1956-59, ending June 30, one year from now. But so far, net obligations under this bill amount to only $77 million and outstanding grant offers total $5.2 million.

The remainder, according to the CAA, "has been programmed." This means the money has been allotted to specific approved projects for which the grant agreements had not yet been signed at the end of April. The money is not obligated until local airport people are ready to start construction and the contract is signed.

A bill now in Congress would continue a federal grants program of $512 million annually through fiscal year 1963 on a 50-50 matching basis by local governments. It is this bill that will present President Eisenhower with a difficult decision, as he is opposed to the program's continuation.

Community Facilities

This program covers a multitude of needs including water supply, sewers, sewage treatment. It is administered by the Community Facilities Administration of the Housing and Home Finance Agency.

It is a two-pronged loan program, one covering planning for construction of community facilities and the other for actual construction. As of now there is authority for $34 million in planning loans. Congress has appropriated $17 million.

As of March 1, advances totaled $11.8 million for planning of 506 projects having an estimated construction cost of $665.5 million.

Applications on March 1 totaled 144 and requested $5.77 million in planning funds for $514 million in projects.

Planning has been completed on 263 projects to cost $300 million and of the 263 only 40 have been moved into construction at a cost of $40 million.

Applications for construction loans on March 19 totaled 297 with an estimated construction cost of $97 million.

PATRICK HEALY, JR.
Spokesman for the cities

Sewerage Works Grants

Under Public Law 660, administered by the U. S. Public Health Service, state agencies are getting $45 million for distribution in grants at this session of Congress. Including this amount, $140 million will have been voted for the three fiscal years of 1957-59. By June 30, expenditures are expected to total $31.6 million out of the $95 million voted for the first two fiscal years of the program. Total estimated spending by June 30, 1959 is $82.6 million out of the total $140 million provided.

Watershed Protection

This program of the Soil Conservation Service of the U. S. Department of Agriculture has as its target a spending total of $100 million by the mid-1960s. For the first three fiscal years 1957-59 appropriations will be $95.4 million and of that total, estimated spending in the same period is placed at $85 million.

$192 Million Water Plan Is Announced by Toronto

A $192 million expansion of water distribution facilities has been announced by the Metropolitan Council of Toronto.

The plan, which will be spread over 20 years, involves construction of a $30 million water purification plant, eight underground reservoirs, seven water pumping stations, and more than 16 miles of transmission mains to cost more than $100 million.

Estimates Way Off

Low estimates get agency, consultant in hot water

A respected consulting firm and its client made headlines in local newspapers last week because a repair job initially estimated at $2.5 million and later pegged at $9.1 million now cannot be completed for less than $21 million.

Charges of "mismanagement" and "misjudgment" were hurled May 27 at New Jersey's Passaic Valley Sewerage Commission and its consulting engineer in a report by state deputy attorney general Charles S. Joelson. Released by the governor, the report recommended a grand jury investigation. Next day it was announced that an Essex County Grand Jury would take up the matter this month.

The project involves repairs and improvements at the commission's Newark Bay treatment plant and pumping station. The report states the consultant, Bogert-Childs Engineering Associates, New York City, first estimated the job at $2.5 million in 1951. In 1953, this estimate was increased to $8,172,000 and in 1955 the consultant increased the estimate to $9,097,000, said the report.

Bids on the first phases of the work were opened beginning in January 1956, and low bids were substantially higher than the engineer's estimate, in some cases amounting to as much as 100% greater.

Contracts were let, nevertheless. Recently the commission announced the job couldn't be completed for less than $21 million.

None of the partners of Bogert-Childs was available for comment, but Seymour A. Lubetkin, chief engineer of PVSC, told ENR that the 1951 estimate was an approximate budget figure. The 1953 estimate, he said, was based on preliminary plans, while the 1955 figure was based on detailed plans for only the early phases of the work.

Mr. Lubetkin noted that contract specifications for the repair job would not allow the contractor to work without interruption due to the need of operating the existing facilities, thus compounding the difficulty of estimating. He stated Bogert-Childs advised the commission to accept the higher-than-expected low bids because the consultant believed lower bids could not be obtained.

This being an election year, there are, of course, political overtones to the entire situation. Present state administration is Democratic, while the Passaic Valley Sewerage Commission was Republican controlled until January 1958.

City Orders Saline Water Plant

California town is first in nation to get salt water demineralizing plant; now hauls fresh water 45 miles

The first water desalting plant in the U.S. to serve an incorporated municipality will go into operation during November in Coalinga, Calif. (population 6,000).

The City Council has approved a proposal to lease, with option to buy, a 28,000 gpd electric membrane plant from Ionics, Inc., Cambridge, Mass.

Coalinga's director of public works, Reginald O. Phelps, estimates the plant will demineralize the town's brackish well water at a cost of $1.00 per thousand gallons. That will give Coalinga potable water at one-seventh the cost it now has to pay for water brought in by rail from Armona, which is 45 miles away.

The plant will reduce dissolved solids content of the water by 85%, from an average 2,000 ppm to a maximum of 300 ppm, well within state and county requirements.

• **Experiment came first**—The estimate on cost of desalted water is based on six weeks of operation of a smaller Ionics plant, a 5,500 gpd plant that was installed to give Coalinga a chance to see how it performs. The smaller plant operates at a cost of $1.14 per 1,000 gal.

The cost estimates for both plants represent all operating costs, including maintenance and electricity, but not capital charges. The smaller plant is a batch plant, while the larger one will operate continuously.

If capital charges were included, cost of water from the 28,000 gpd plant would approximate $1.45 per 1,000 gal. The 45 cents capital cost is based on 25 years and a 3% municipal interest rate.

The 28,000 gpd plant has a purchase price of slightly over $80,000. However, the town will rent it for $2,500 a month plus $350 a month for service. Rent will apply on purchase price. At the end of the 30 month option period, the town can buy the plant by paying a balance of $21,000.

The town will pay for the plant out of water revenues, which will remain at current levels despite the fact that water will cost the town less.

"We decided on this plant," says Mr. Phelps, "because we wanted water that would taste as good as that Armona water. This gives it to us—the water has no mineral taste."

This desire on the part of Coalinga for high quality water accounts for the somewhat high price of the desalted water.

The projected plant consists of a number of membrane "stacks," each rated at 20 gpm (28,000 gpd) and 40 to 50% salt removal. To get the 2,000 ppm Coalinga water down to a maximum of 300 ppm of dissolved solids requires operating four of the stacks in series.

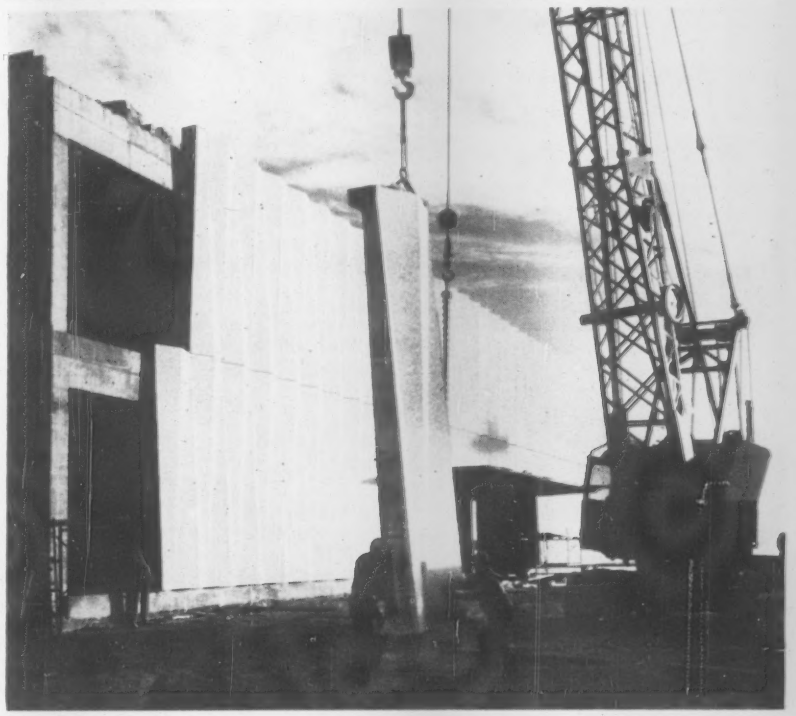
Two stacks in series would remove between 65 and 75% of the entering salt.

Another factor is the small size of the Coalinga installation. Last year, a representative of Ionics projected the cost of a 2 mgd two-stage electric membrane demineralization plant at 42 cents per 1,000 gal, including capital and operating costs (ENR Feb. 14, 1957, p. 59). Construction cost involved here was $10,000 per stack on 140 stacks, compared to approximately $20,000 per stack on four stacks at Coalinga.

• **High-cost bargain**—At a projected cost of $1.45 per 1,000 gal, the Coalinga water will still be quite a bit higher than the average cost of water to municipal customers: 20 cents per 1,000 gal in 1950 (probably up 50% by now). Nevertheless, the desalting plant is a good bargain compared to hauling fresh water 45 miles. The new plant is expected to meet Coalinga's needs for 10 years.

Coalinga is now using about 16,000 gpd of fresh water. The town has two separate distribution systems, one for the fresh water and the second for brackish well water. The new desalting plant will serve only the former system, which generally feeds into the kitchen of a home. Townspeople normally use the brackish water for bathroom purposes and the fresh water for drinking and cooking.

Coalinga is 50 miles southwest of Fresno in the dry Central Valley.



Precast Panels Make Many-Faceted Wall

Folded precast concrete wall panels give Gimbel's department store in Wauwatosa, Wis., an unusual faceted exterior appearance. The job required 150 of the crimped units in two sizes—22x4½ ft, 4 tons, and 17x4½ ft, 2½ tons.

The exposed coarse aggregate is white quartz. Sand of the same material is the fine aggregate.

The store is part of an 80-store shopping center nearing completion in the Milwaukee suburb.

Associated architects for the Gimbel store are Grassold & Johnson, of Milwaukee, and Welton Becket & Associates, of Los Angeles. Hunziger Construction Co., of Milwaukee, is the contractor.

Rapid Transit at "Wholesale"

$25 million version of a $300 million system would use present rail facilities in Camden-Philadelphia area

A $25 million, "bargain basement" plan for extending high-speed rail transportation from mid-Philadelphia into the densely populated area across the Delaware River around Camden, N. J., has been presented to New Jersey officials and civic leaders by Philadelphia's Mayor Richardson Dilworth. So well does the idea shape up in respect to low cost and high effectiveness compared to an earlier $300 million plan, that even its opponents say it may be adopted.

Evolved by Philadelphia's traffic consultant, Louis T. Klauder, the plan calls for conversion of the Pennsylvania-Reading Seashore Lines tracks between Camden and Berlin, N. J., into a commuter line connecting with the existing line crossing the Delaware on the Benjamin Franklin Bridge.

Most of the $25 million cost would be for construction of bridges over existing tracks, for parallel tracks to enable the railroad to haul freight simultaneously with commuter traffic and for improvement of the bridge line station located at Eighth and Market Streets.

The Delaware River Port Authority would finance the program, and to make the proposal more attractive the city is willing to reduce its rental to the Philadelphia Transportation Co. for the bridge line subway.

Currently the bridge line operates over the Benjamin Franklin Bridge to connect downtown Philadelphia with midtown Camden. Under the new plan the line would continue through Camden and on into the outlying commuter areas.

• **Second such plan**—The plan is a greatly modified version of the $300 million program submitted two years ago for Philadelphia-South Jersey high-speed service in a report by Parsons, Brinckerhoff, Hall and Macdonald (ENR Aug. 30, 1956, p. 24). That plan provided for use of three existing railroad lines out of Camden. In addition, it entailed construction of a new tunnel under the Delaware River and a second tunnel under Arch St., and it required several new stations in Philadelphia.

The Parsons plan was favorably regarded, but its cost was beyond the means of the Delaware River Port Authority. At the time the authority could support a bond issue of less than $114 million; the difference between that figure and the estimated $300 million cost would have had to come from the states of New York and New Jersey.

The present plan (which includes construction of a new bus terminal) would require financing by the authority of something in the neighborhood of $50 million. This amount would be no problem for the authority since it figures that by the end of 1958 it will have sufficient borrowing capacity to build a new Tacony bridge over the Delaware above Philadelphia and still have $120 million for other purposes.

South Jersey officials say it is the best proposition ever advanced. Pennsylvania-Reading Seashore Lines officials are receptive to leasing their tracks. The Delaware River Port Authority says it will study the plan.

Proposed Tax on Wastes Worries Industry

Pulp mills in the state of Washington reportedly are very worried by a current voter campaign to impose a confiscatory tax on every gallon of harmful pulp-making waste discharged.

A group known as "Citizens for Clean Waters" now is rounding up the required number of signatures to place the measure, called Initiative 203, on the November general election ballot.

Should the drive for signatures (ending July 3) fall short, however, the substance of the initiative will be presented to the 1959 legislature. That is why the pulp mills of the state, and other industry, have launched a strong campaign against the initiative.

Initiative 203 proposes to impose a tax on the discharge into state waters of liquid waste from any wood pulp production process employing chemicals or solvents. Mills whose discharges do not exceed 20% of their total digester liquor, or who would discharge into certain designated "larger-scale dilution sites," would be exempt from the tax. Other discharges would be subject to a tax of $2.50 for each 1,000 gal of digester liquor discharged.

The pulp mills, whose discharge is estimated by the citizens group at 6.5 million gal annually, assert that such a tax would be confiscatory. The citizens admit as much, but point out that the tax could be avoided by piping or barging the waste liquor to designated dilution sites.

The citizens group is getting most of its support from the oyster industry, with most of the officers also top officials of sea food companies. Success of the initiative will depend largely on whether the oyster interests can enlist the support of the sports fishermen of the state. The two groups desire to rid state waters of pollution, but the sports fishermen are working for an initiative of their own which would block construction of dams in the fish-important Cowlitz River. They have not yet given much help to the oystermen.

The pulp mills are waging their campaign through their own association and also through the Association of Washington Industries. They admit that pollution is a problem but deny that they are the only source. Mill officials declare that much more research must be done before the problem can fully be understood.

Federal Road Fund Starts Third Year With Surplus

Since its inception more than two years ago, the highway trust fund has taken in over $1 billion more than it has paid out. This picture is expected to change within the next two or three years, but for now at least there is a surplus in the Federal kitty. Money has been coming in as anticipated, but because of the many factors delaying states' demand for federal highway money (ENR Nov. 21, 1957, p. 19) withdrawals on the account have been below expectations.

On July 1, 1957, at the end of its first full year of operation, the fund had a balance of $516 million. For the first ten months of fiscal 1958, as the accompanying table shows, collections again outpaced expenditures by about $500 million.

The lag in expenditures that created the 1957 surplus has carried over into this year, and its impact on the fund is still being felt. Unofficial estimates are that in spite of recent gains the road-building expenditures for fiscal 1958 will fall short almost $300 million of the $1.8 billion predicted. At the same time tax collections, which have been running fairly close to expectations, seem sure to hit the $2.1 billion mark.

—The Highway Trust Fund—

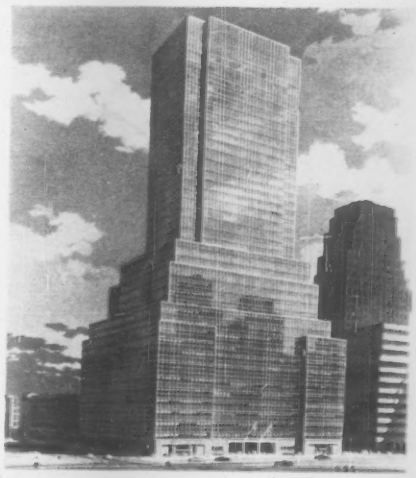
(OPERATIONS FOR FISCAL YEAR 1958—ENDING 30 JUNE 1958)

MONTH	RECEIPTS INCLUDING INTEREST	EXPENDITURES INCLUDING TAX REFUNDS AND PAYMENTS TO LABOR DEPT.
July '57	$174,100,000	$109,304,260
August	219,418,968	129,780,030
September	207,200,000	134,479,823
October	183,300,000	160,850,722
November	202,556,670	207,193,718
December	171,622,381	116,735,544
January '58	150,900,000	111,873,122
February	189,937,638	118,440,041
March	149,800,000	96,962,340
April	145,100,000	90,382,219
10 Months Total	1,793,935,657	1,276,001,819

Source: National Highway Users Conference.

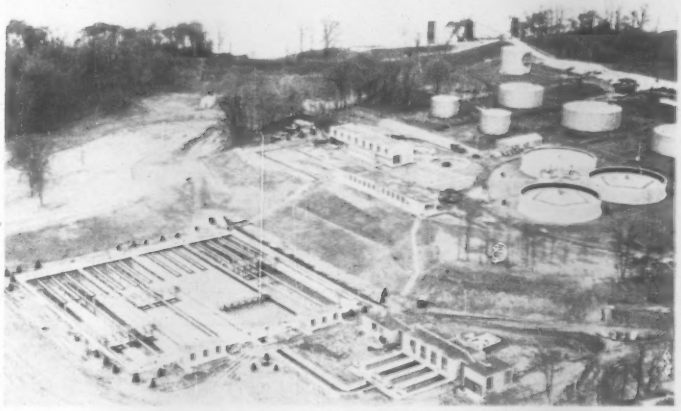
Helicopter Erects a Beacon

Near London's Gatwick Airport a British European Airways helicopter took on the job of setting a half-ton rotating beacon atop a tower and averted the need for cutting a path for a crane through the surrounding woods. Two men on top of the 85 ft tower guided the beacon into place. To complete the job took two trips, one for the base and one for the beacon itself.



New Face in Downtown New York

Demolition began last week for this 40 story skyscraper at 80 Pine St. in the New York City financial and insurance district. Rudin Management Co., developer of the property, announced that the glass and aluminum faced steel frame building will be erected by Samuel Rudin from plans by Emery Roth & Sons, architects. The structure, containing a million sq ft of floor space, will be completely air conditioned. James Ruderman is consulting engineer on the $25 million building.



Louisville Opens Sewage Plant

Sewage has begun to flow through a new $6 million primary treatment plant for Louisville, Ky. Built to 300 mgd capacity, it is now operating at 30% of capacity pending completion of the city's $10.3 million interceptor system scheduled for late 1959. Designed by Metcalf & Eddy, Boston, the plant is equipped with screens (lower right), aerated grit channels, settling tanks (left) and digesters, elutriation tanks and vacuum filters (in building in middle) for sludge. Settled effluent runs into Ohio River in background.

New "Jimmy" Diesel

the thriftiest ever!

New GM "71E" Diesel can cut gasoline engine operating costs in half—now available for any make truck 26,000 GVW and up

If you're using gasoline trucks for heavy hauling, almost any Diesel will cut your fuel costs—on the average about 3¢ a mile.

And this new free-breathing General Motors "71E" Diesel—with 4-valve head and new free-flow tip injector—is proving itself second to none on fuel mileage. But fuel savings are only part of the extra economy you get with a "Jimmy" Diesel. Consider these features also:

Longer Life—due to simplified, heavy-duty, 2-cycle design. Field experience shows that GM Diesels have longer and lower maintenance cost periods between overhauls than 4-cycle Diesels.

Easier Maintenance—because of their lighter-weight, parts-interchangeability features and the ready availability of unit subassemblies. Minor repairs or major overhauls can be made on a "Jimmy" in much less time than on other Diesels.

Lower Parts Prices—due to standardization, interchangeability and ultramodern manufacturing techniques. Price of piston assembly for a competitive 4-cycle truck Diesel is 63% higher than for a "Jimmy" Diesel. And you make similar savings on other GM Diesel parts, too!

Faster Response—the greater load acceleration of a "Jimmy" Diesel comes from its trigger-quick 2-cycle response, higher power-to-weight ratio and greater torque reserve.

Whether the truck you are now using is gasoline or Diesel—a GM

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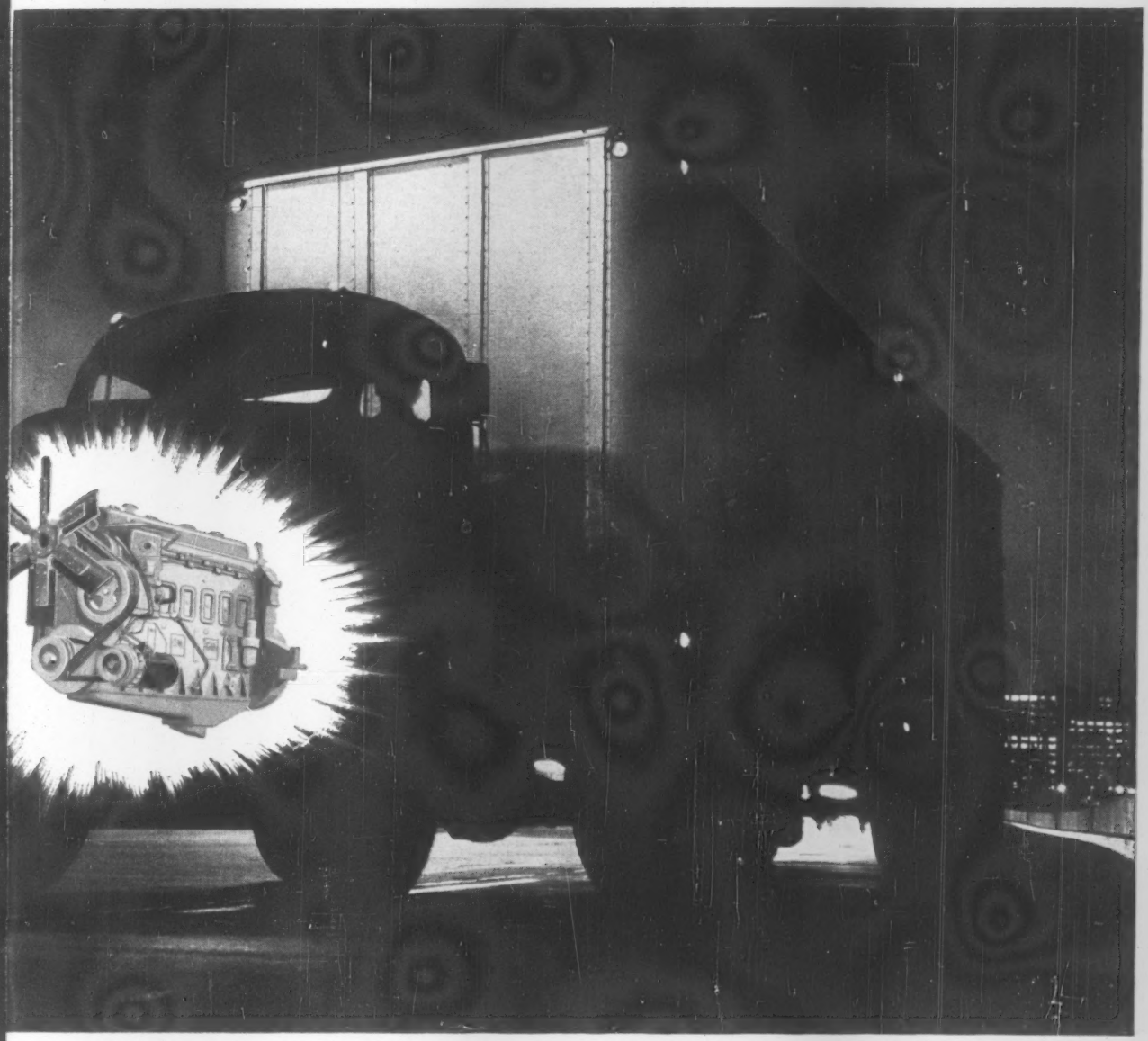

Diesel truck engine is your best way to cut operating costs.

Call your GM Diesel distributor about repowering present equipment. And when you're in the market for new trucks, be sure to ask for this great new GM "71E" Diesel–*it's the thriftiest on wheels!*

Now – more than ever – *it pays to standardize on GM Diesels*–available in 1485 applications of power equipment built by more than 175 manufacturers. Parts and Service *Worldwide.*

Here's how a "Jimmy" Diesel fits your truck

Load	Model	Horsepower
35-45,000 GCW	4-71E	140 gross HP @ 2100 RPM
40-60,000 GCW	4-71T*	171 gross HP @ 2300 RPM
50-76,800 GCW	6-71E	210 gross HP @ 2100 RPM
60,000 GCW and up	6-71T*	236 gross HP @ 2100 RPM

*New GM Turbopower Diesels–higher power with little increase in size or weight.

Write for illustrated brochure, "A New Line of GM Diesel Truck Engines"

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Church Grows With Congregation

St. Matthews Episcopal Church of San Mateo, Calif., was enlarged by cutting the original building in half, moving part of it 30 ft and adding two new bays in the middle. The operation increased seating capacity from 222 to 392.

Before the move, both halves of the building were thoroughly braced. A new foundation was prepared for the section to be shifted. Next, steel beams were laid on concrete-filled piles to carry the 400 tons of masonry, steel and stained glass windows on the short trip. Then the building was carefully cut in half. A rigid steel frame, placed under the moving section, prevented any damage during the relocation.

For the move itself, the contractor used four remote-controlled 100 ton hydraulic rams run from a central electric pump. Men at each ram called out ¼ in. movements as the structure was pushed along the tracks. As each ram reached its 10 in. limit, it was moved forward and clamped in a new position on the tracks.

Specialty moving contractors for the operation were D. J. & T. Sullivan of San Francisco.

Briefs

• **Bridge opening**—Rhode Island's $15 million Providence River Bridge—biggest highway and bridge job in the state's history—will be completely opened to traffic June 15. The bridge is a first step in a long-planned north-south freeway system designed to speed traffic through downtown Providence.

• **San Diego Aqueduct**—An $8.8 million contract for construction of an 18.2 mile section of the second San Diego Aqueduct has been awarded to a joint venture of J. E. Young Pipeline Co. and Baker-Anderson Construction Co., of Los Angeles. The pipeline section will consist of 72 and 75 in. steel pipe, cement lined and coated, with either welded or rubber gasket joints. The same joint venture has another 10.6 mile section of the 59 mile line.

• **Earthy approach**—To publicize a new $32 million dam near San Angelo, Tex., an unusual approach was taken by the city's Chamber of Commerce. Plastic bags containing dirt from the first core drillings were stapled to announcements of the water conservation project and sent to prospective residents of the area. Each announcement pinpointed the advantages of San Angelo as an industrial center affording pleasant living conditions. The new Three Rivers Dam and conservation storage project will give the city its third large lake and yield 26 mgd for local use.

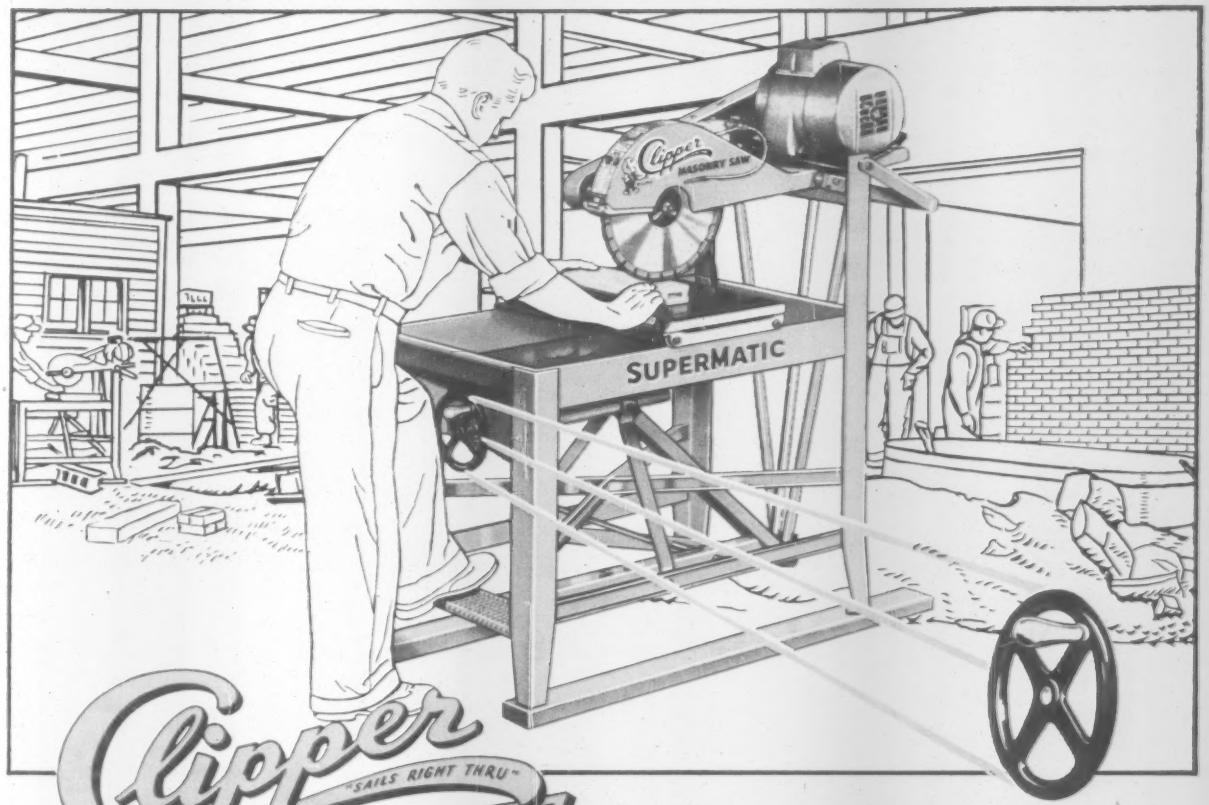
• **Bank keeps growing**—The Chase-Manhattan Bank will occupy the first three floors and basement of the new office building at 410 Park Ave. designed by Emery Roth & Sons, architects. It will be the bank's 101st New York City office. The bank entrance on East 55th St. will open into a gallery running along the Park Ave. front at street level. Escalators will lead from there to the main banking floor on the second story. The bank's offices are designed by Skidmore, Owings & Merrill, who also is architect for Chase-Manhattan's new headquarters in the New York City financial district.

• **Detroit sewerage contract**—The Common Council of Detroit has given final approval to a $33 million expansion of Detroit's sewage treatment facilities. The Detroit Water Board plans to get construction under way immediately and have $20 million of the money spent by 1961. Beginning in 1959, water users will pay about $1.20 a year extra to finance the sewerage work.

• **$100 million canal**—Army Engineers Review Board in Washington has given preliminary approval to a proposed 66 mile canal from the Mississippi River at Murphysboro, Ill., following the Big Muddy River and Beaucoup Creek in Illinois. Estimated to cost $100 million, the canal would provide 9 ft navigation into the rich southern Illinois coal fields, an area now served only by railroad.

• **Bargain rates**—A "Night Flight Express" plan has been introduced by the Florida State Turnpike Authority. It authorizes bargain rates for all vehicles entering the Miami-Ft. Pierce tollroad from 10 p.m. to 6 a.m. The cut in tolls will range from 20% to a maximum of 41%, pending on type of vehicle and distance traveled. It is believed that this is the first time in the history of toll operation in the U. S. that such a plan has been developed by any toll facility.

• **Billboard ban**—Legislation prohibiting billboards along Tennessee's new interstate highways will be recommended to the next General Assembly by W. M. Leech, State Highway Commissioner. Should the passed legislation meet federal requirements, an extra one-half of one percent reward in federal aid would entitle the state to an additional $5.5 million over the life of the superhighway construction program.



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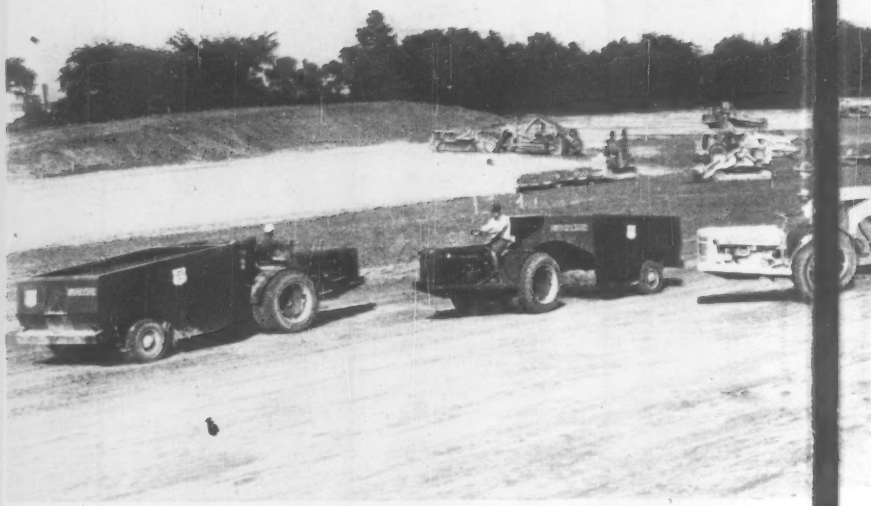
FACTORIES IN ENGLAND, FRANCE, GERMANY, ITALY 244X

Spurred on by a speeded up road-building program, engineers and contractors have sought better ways of building asphalt roads. As new techniques are developed, new machines are being built to apply the methods on the job. Result: faster and more efficient highway construction.



DUAL-PURPOSE ROLLERS with both steel wheel and pneumatic tires compact subgrades with efficiency. Addition of trailing vibratory unit further increases equipment's versatility.

Machine Design Paces Asphalt Pavement

H. A. Radzikowski
Chief, Division of Development
Office of Operations
U. S. Bureau of Public Roads
Washington, D. C.

When, after World War II, asphalt paving began to come into more extensive use on our nation's highways, engineers and contractors were quick to devise and develop new methods and equipment to make easier the use of this new material.

The continuing effort to improve asphalt as a paving material lays stress on developing machines to give better compaction control, faster paving speeds and greater automation. The tendency is to shy away from liquid sealers on the higher traffic routes and to promote skid-resistant pavements where aggregate polishing is prevalent by using a wearing course containing silica sand or silica sand with stone screenings. And the fast-moving changes in equipment and technology have led state highway officials to consider more carefully the practicality of result specifications over methods specifications in all phases of highway construction.

In the field of soil and aggregate preparation and testing, important developments in both methods and equipment have taken place.

• **Aggregate upgrading**—Among these is the aggregate upgrading machine that will help considerably where poor grade local gravels must be used. The machine works on the principle of difference in elastic or bouncing properties between the soft particles and the harder and

VIBRATORY COMPACTOR (pad type) attachment to conventional tandem roller increases compactive effort without costly addition of weight.

VIBRATORY ROLLER of German design is useful for subgrade, base and bituminous

Technology

more durable stones in the aggregate. Stones taken from the gravel pit feed into an overhead bin for their transfer by gravity to a vibratory feeder. They drop off this feeder onto a large inclined plate made of hard alloy steel. Sound, durable stones will bounce in a longer arc than the soft stones with those of a similar characteristic distribution curve. The bounced stones then are collected in three separate compartments with stones of similar elasticity dropping into the same bins. Cost is about 5 cents per ton.

mat compaction. Driving roll width is 40 in. Vibration does not affect operator.

To keep abreast of the trend toward greater use of stabilized bases, a stabilizing plant also has been designed. The plant is simply an elevated pugmill with receiving and discharging hoppers to add water or asphalt. With this plant, contractors can stabilize deficient local materials with calcium chloride, cement or bitumen. The plant has a rated capacity of 40 tons per hour.

• **Moisture-density tests** – When it comes to testing and measuring the moisture and density content, a bomb type device is used by the State Road Commission of Florida. Calcium carbide added to the soil tested generates a gas, by which the moisture content is determined from the gas pressure.

Another promising device operates on a radioactivity principle–where radioactive materials tend to "scatter" when they meet materials of different moisture content or density. The amount of scatter measured then gives the moisture content or density through a direct relationship with the scatter. The Army Corps of Engineers is using this method as are engineers of the AASHO road tests at Ottawa, Ill.

• **Automatic grading control**–To speed up grading operations for subgrade, base and bituminous paving courses, an electronically controlled fine grader attachment for a motor grader is available. The advantage of this equipment is that it maintains the grader blade in a level position or at a desired crown slope without being jarred by bumps in the road. Some of the advantages of this attachment would be: (1) reduction in time and cost by some 25 to 75% of producing finished grades; (2) reduction in cost by some 50 to 80% of grading stake out at currently accepted tolerances; (3) production of smoother surface on all pavements when the paving machine travels on the graded surfaces; (4) production of road crowns with greater accuracy.

• **Vibrating compactors**–In compacting asphaltic pavements and their supporting foundations, some significant advances have been made recently–the trend being toward combined vibration-compaction equipment.

One machine attaches vibrating pad units to three-wheel rollers, vibrating by either electrical or hydraulic motivation. The unit is suspended from the rear and may be lowered from the travel position hydraulically. Tests on compaction of stabilized base show that 102% of standard density has been achieved in one pass with this attachment in operation. This compares with 88% of standard density obtained with one pass of the roller alone.

In addition to the several towed vibrating type rollers, a self-propelled vibratory roller has appeared on the market. This German-manufactured roller was introduced in this country only last year and shows promise as a construction unit–especially if the width of the driving roll can be widened to 48 or 54 in. from its present 39½ in. The roller is highly transportable, weighing only four tons. And under vibration it is claimed to have the compacting ability of a 20 ton roller. The vibrating unit is the driving wheel, which can be varied for various soil conditions by means of split pulley arrangements. Nor is vibration transferred to the frame or operator's position, thanks to an effective damping system. Demonstrations to date show superior performance to conventional rolling equipment on all types of compaction jobs.

A smaller self-propelled roller also has been marketed by American manufacturers, but it is useful only for maintenance and light construction–the weight of the unit being between 2,300 and 3,500 lb. It gives compactions roughly equivalent to an eight ton roller, the manufacturers claim.

• **Pneumatic rollers** – Pneumatic tire rolling equipment has come into the fore, particularly in self-propelled machines with higher pressure tires. These rollers have been used both for breakdown rolling and for intermediate rolling prior to smoothing with a steel wheel roller. However, some construction men think that in addition to pneumatic rolling at the breakdown and intermediate stages, a follow-up using steel wheel rollers is needed.

The key to successful breakdown is to operate the equipment with tire pressures and ballast loads to produce an average tire contact pressure of 35 to 40 psi. With the softer tire, horizontal forces exerted help to produce better particle distribution. Nevertheless, provisions have to be made to cool the tires and scrape off any pickup for efficient operations.

In the intermediate or semi-final rolling, tire pressures are adjusted to produce a contact pressure of around 80 to 90 psi. The object of this is to build an initial density into the pavement rather than under heavy traffic–which sometimes is accompanied with distortion (wheel ruts) in the finished pavement section.

The military already has experimented with a method of changing tire pressures while the vehicles are in motion. And civilian engineers are suggesting that similar designs should be investigated for pneumatic rollers so that the machine can be used for both breakdown intermediate rolling with minimum conversion time. How-

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AVERAGE LENGTH—40 feet

MAXIMUM HEAD ROOM—11 feet

DRIVEN LENGTH INCREMENT—5 feet

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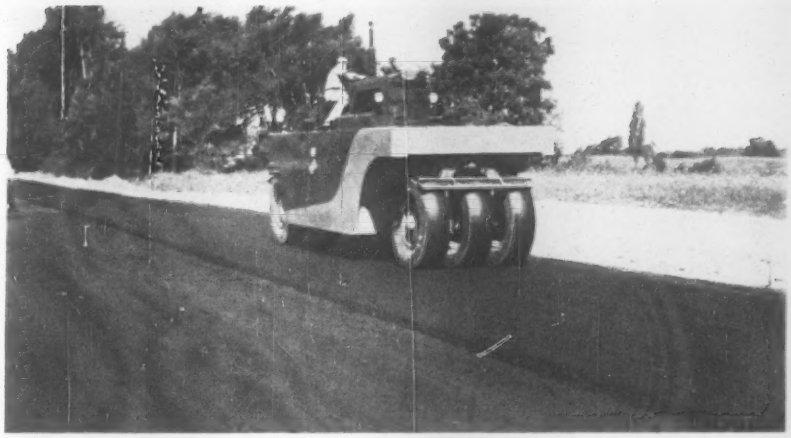
Monotube Foundation Piles

. . . Pneumatic rollers come to fore



PNEUMATIC ROLLER, self-propelled type, is finding greater application in compacting bituminous concrete pavement. Adjustable compactive effort is feature.

ever the cost of any such innovation will affect its practicality.

Yet pneumatic rollers on bituminous concrete constructions have found limited use to date for the following reasons: (1) There is no suitable yardstick for measuring the compactive effort of the pneumatic tires, and (2) construction specifications of most states have been restrictive in calling for particular equipment rather than results.

In the attempt to develop suitable yardsticks for the pneumatic tire equipment, however, studies are being made by our Development Division to develop criteria that will indicate the compacting ability of various pneumatic-tired rollers.

Since the compactive ability of any pneumatic tired roller depends on the average contact pressure, basic engineering data are needed for all sizes of compacting tires. Contrary to popular opinion in the past, the average contact pressure exerted by pneumatic tires is not limited to the tire inflation pressure alone, but also depends on tire size and ply rating and the imposed load.

A final use of pneumatic-tired rollers is in keying in stone chip seals on surface treatments. With lower contact pressures, one can get good stone imbedment without crushing the particles. In this case a two-axle roller is preferable since the rear axle, tracking about midway between the tires of the front axle, eliminates streaking.

• **Dual purpose rollers**—Finally, several years ago, one equipment manufacturer produced a dual purpose roller with both steel and pneumatic roller units propelled by a two-wheel tractor. This has a wide range of contact pressures through a ballast adjustment. Last year the versatility of this machine was increased by adding a trailing vibratory steel wheeled roller and by providing alternate pneumatic and sheeps foot rolls interchangeable with the steel roll located under the ballast box. These innovations provide a 3 in. to 1 in. roller that is adapted to a wide range of compaction jobs. Again, the two-axle pneumatic roller adaptation is designed with the front and rear tires staggered one-half the tire width—this slight offset covering the space between tires.

• **Portable profilometer**—A step in the greater use of result specifications on bituminous paving is being made by the California Division of Highways with its collapsible and portable profilometer that can be carried in the bed of the pick-up truck. It is able to produce a deviation from the smooth profile over a 25 ft length and will record the profile on paper and on the road. Thus the road profile can be used by the contractor to correct surface irregularities while the bituminous mat is still warm.

• **Automatic batch plants**—In a field of mixing and processing of bituminous materials there have been a number of valuable new improvements in nearly all types of equipment. Probably the outstanding trend is toward automatic controls and eliminating human error in the batch plants. With the use of electric and hydraulic controls and timing devices, one man can start the plant, watch it go through its various cycles of automatic batching, dry mixing, weighing and introduction of asphalt, wet mixing and discharge to trucks. Should any aggregate size in the storage bin be inadequate for the batch requirements, the mixing operation automatically stops until the aggregate is discharged into the weigh hoppers. Then the mixing cycle automatically continues. Such automatic controls make possible accurate proportioning of all sizes of aggregates at the same time. Proper sequence is assured by automatic timing, which also prevents one operation from beginning until another has been completed.

The automatic features have their greatest economies when there are a number of repetitions of the same gradation batch to be made. Should several batches of the different gradation be required, manipulating one hydraulic control lever disengages the automatic controls to permit manual operation of the various cycles. And when the off standard mix is completed, the hydraulic control lever will return the operation to full automatic.

In addition to the full automatic operation, other improvements are apparent. In the first place there is a multiple bin control at the cold aggregate feeder that gives a rough proportional control of two sizes of stone and two sizes of fines being fed to the dryer. This practically eliminates the possibility of a bin running low in the tower from where the pugmill is fed.

Next, the cold stone is fed to the drier through a clean long flame heat blast generated by a lower pressure air atomization system. The driers, with capacities to 200 tons per hour, have been in use for about three years and are more economical than auxiliary steam methods that have been used in the past. As the aggregates and bitumen reach the mixing stage they are introduced into an improved pugmill of shorter length and greater diameter, with the result that more intimate mixing is achieved.

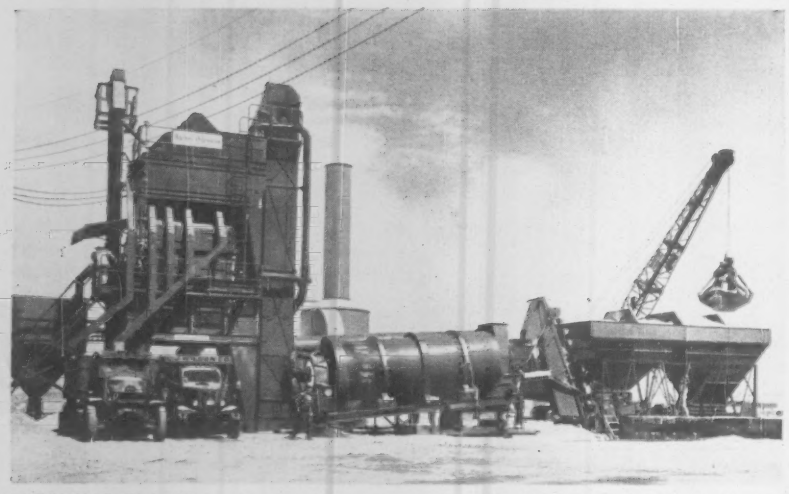
And, too, nearly all batch-type plants as just described—and many continuous-type plants—now are powered electrically. This not only makes single switchboard control possible, but eliminates the need for two or more gas or diesel power units.

• **Volumetric plants**—In the volumetric control and continuous mixing field there is a trend toward plants producing larger hourly tonnage. Because of its design, this kind of plant is nearly automatic in its operation. Controls automatically stop proportioning and mixing when an insufficient supply of aggregate is available. There also has been a trend toward use of telltales of some type in both volumetric control and continuous plants as well as the batch plant.

The trend continues toward newer methods of heating asphalt materials. Both hot oil and electrical methods largely have replaced the older steam methods. As in the case of electrical power, the electrical heating method is largely used with a stationary batch-type plant where surplus power is more likely to be available.

• **Impact mixing**—Another method in-

. . . Automation is trend in batching plants



BATCHING PLANT trend moves to automatic controls. Fast, flexible control of mix is feature of new designs with full automation the keynote.

troduced recently to this country has been the impact method of mixing bituminous materials. The process was developed in Switzerland and has been used extensively in Europe. Principally, the variations from our conventional plant mixing are in the introduction of bitumen into the pugmill in the form of vapor under pressures of 250 to 300 psi with high-speed mixing that tosses rather than kneads. Thus with the aggregate tossed into a concentrated bituminous fog, individual particles are instantly and uniformly coated. One bituminous equipment manufacturer has experimented with several of these impact mixing pugmills in combination with other conventional equipment and says results to date have been encouraging.

Many extensive tests are being conducted on this plant at the present time. Some of the advantages of the impact method, in addition to those mentioned, appear to be in the use of less bitumen with a faster mixing time. But here again, contractors cannot take advantage of this method until construction specifications are revised. With the development of new equipment and methods in asphalt paving technology comes the prime question of revising state specifications. It becomes evident though that as new methods are adopted and tested, and new machines are invented, old specifications, based on equipment standards and setting forth what equipment a contractor must use, should be abandoned in favor of more flexible result specifications. In this way, contractors may choose the use of their equipment. Then all that would concern the inspector would be to see that required results had been attained. The means of attaining then would be left strictly to the contractor.

• **Vibrating screed type**—In the field of bituminous paver-finishers, several have been improved during the last few years with many new models introduced. For example, a new crawler model paver is equipped with an electric vibrator screed operating at 3,600 vibrations per minute. Manufacturers claim that this permits higher operating speeds because of the reduced tendency to create voids or pull the mat. Versatility is assured by a transmission that gives 15 paving speeds varying from 11 to 102 fpm with a maximum travel speed of 2.2 mph. In binder courses, this unit has operated at speeds up to 58 fpm.

• **Pneumatic tire pavers**—Several years ago a pneumatic-tired paver was put on the market; since then, the original model has undergone several improvements. Advantages claimed over the crawler type are lower maintenance and repair costs, longer wheel base and higher travel speeds. The original model in production is capable of paving widths from 8 to 13 ft at speeds up to 60 ft per minute. A similar model now being developed employs greater automation, including automatic load equalizing and lay-down speeds up to 120 ft. per minute.

Last year a smaller model employing the same features of the larger pneumatic model was introduced. Mainly, it was designed for small to medium jobs, including driveways, alleys, parking areas, streets and secondary roads. It can lay down lane widths from 8 to 11 ft at speeds of from 10 to 62 fpm and its travel speed is 8 mph.

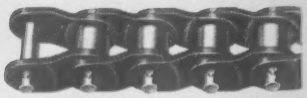
As can be seen, then, equipment manufacturers are giving greater attention to increased paving speeds, although it is questionable whether this increased productivity can be fully utilized in view of the limitations of methods specification. Sixteen states have construction specifications that limit the operating speeds of bituminous pavements—some range from 5 to 50 fpm; two require speeds consistent with good work. Another provides that the speed may be varied by the engineer.

• **Increased paving speeds**—In general, the average rate of placing bituminous concrete pavements has been about 34 fpm. Now, paver-manufacturers claim lay-down speeds from 60 to 120 ft per minute. Counter claim is that sufficient initial compaction cannot be furnished by machines at these high lay-down rates. But on rebuttal the manufacturers say that new pneumatic rollers can furnish both breakdown and semi-final rolling at lower costs than conventional methods—and with closer control of density. If paver manufacturers can prove that the end result can be met at the higher lay-down speeds, we then should try to match the paver output by increasing the related work flow process speeds, including mixing and hauling. And to further improve paver design, a suggestion has been made that an automatic screed positioning device similar to that described for motor graders might be adapted to bituminous pavers. Thus, close control would be had over crown slopes and profile with no interference from foundation course irregularities.

• **Chip spreader**—When bituminous pavements must be resealed periodically, a newly developed self-propelled chip spreader now is available. This machine operates at speeds up to 15 mph and is given a daily output of about 7 miles of two-lane pavement. The spreader unit is designed to give a tighter, more uniform surface by placing the larger chips first and filling the voids with finer stones. Then, when rolled, an improved imbedment results over that obtained with unsegregated stone chips.

Finally, a recently developed curbing machine has greatly increased the use of asphalt as a curbing material for parking areas, islands and other highway adjuncts. An asphalt lip curb was used at the outside shoulder limits for the full length of the Connecticut Turnpike, for example.

• **Trend to sealers**—When it comes to asphalt paving methods, there is a trend to resealing low and medium-type pavements that carry a considerable traffic volume with mixed-in-place instead of liquid seal coats. Both Virginia and West Virginia have reconditioned many of their older pavements with an inch or more of mixed-in-place materials laid down with a traveling plant. And often a wearing course is laid down where there are serious cross-sectional deform-



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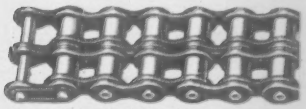

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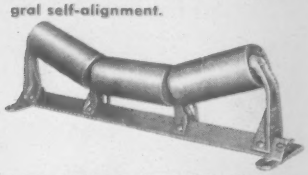

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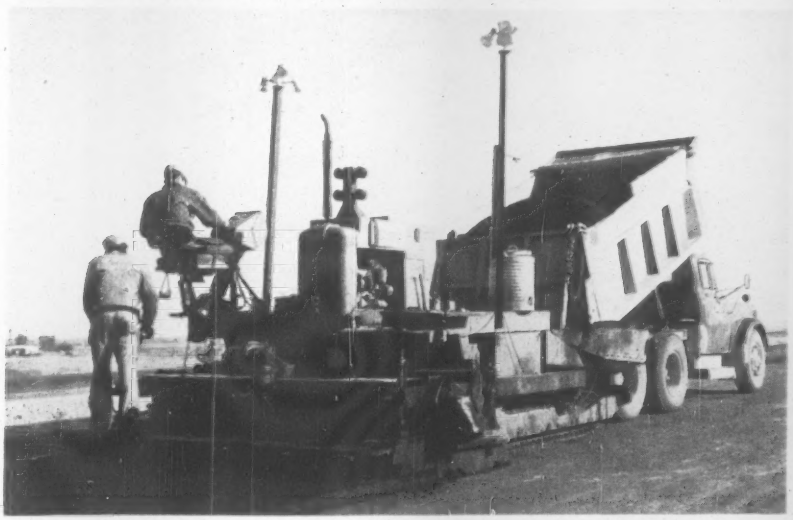

BITUMINOUS PAVERS are capable of faster paving speeds (up to 102 fpm). Advent of such equipment means change in many specifications to allow its use.

ities. On the other hand, Connecticut uses a blade-mixed seal of about 30 lb per sq yd. In both methods there is an aim to improving the skid-resistant riding surface along with additional structural stability.

• **Emulsions to the fore**—The use of asphalt emulsion both in sealing portland cement concrete and bituminous pavements at highways and airports is increasing. And a slurry seal generally proceeds a bituminous surface treatment. For instance, the Department of Public Works of Rochester, N. Y., has made several novel applications of emulsion slurries in its street maintenance program. It has used asphalt slurry made up of sand, crushed stone screenings and emulsified asphalt, not only to seal old cracked pavements and to provide smoother wearing course, but also to seal new open-type plant mixes following the final rolling. The slurry is mixed in a batch plant and placed with a spreader box having its interior lined with rubber flaps and equipped with an adjustable screen. The streets were flushed, dried and broomed as necessary before the slurry was applied. After several years experience with these methods, a substantial reduction in maintenance costs, especially during winter and spring breakup, has been noted.

• **Skid-resistant pavements**—Developing skid-resistant pavements has been another field where considerable progress has been made. The Virginia Department of Highways is pioneer in this work. Looking for a substitute for rock asphalt in de-slicking pavements, it has come up with a silica-sand asphalt mix that is slightly more effective than the natural material and more economical. Its problem has been to utilize a plentiful supply of dolomite limestone in the Shenandoah Valley area that tends to polish under traffic.

The Virginia Department of Highways also plans to build in skid resistance during construction, particularly on the interstate system where use of polish-resistant materials is required. It plans to use aggregates made up of 50% silica sand and 50% stone screenings with top size of ⅜ in. The mix would be applied immediately after the binder course at the rate of 60 lb per sq yd.

The fine, sandy de-slicking mix is made up of a sand that will pass a No. 10 sieve with 95% silica particles. The binder is 85 to 100 penetration asphalt cement to which hydrated lime is added in the mix. The hot mix is applied with a chip spreader or paver finisher at the rate of from 15 to 25 lb per sq yd.

The Port of New York Authority also has found that the fine silica sand asphalt as developed in Virginia was ideal for resurfacing bridges, because the thin skid-resistant wearing course did not add appreciably to the dead weight; also, manholes, curb drains and expansion joints would not have to be raised. Both the 2½ mile Pulaski Skyway and the 8,750 ft Goethals Bridge have been resurfaced with a fine silica-sand mix, which has had excellent results to date. Engineers estimate they have saved placing about 3 in. of asphaltic concrete. The authority says one of the chief advantages of this material is that it does not crack like sheet asphalt; wearing away is its chief form of deterioration. It reports cost in place of 40 to 50 cents per sq yd (½ in. thick).

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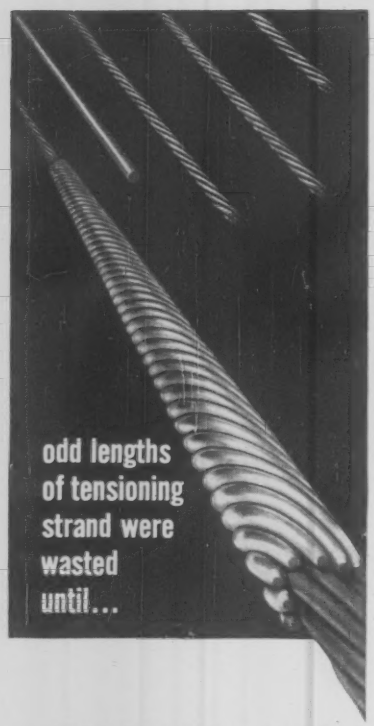

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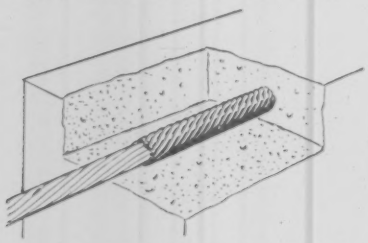

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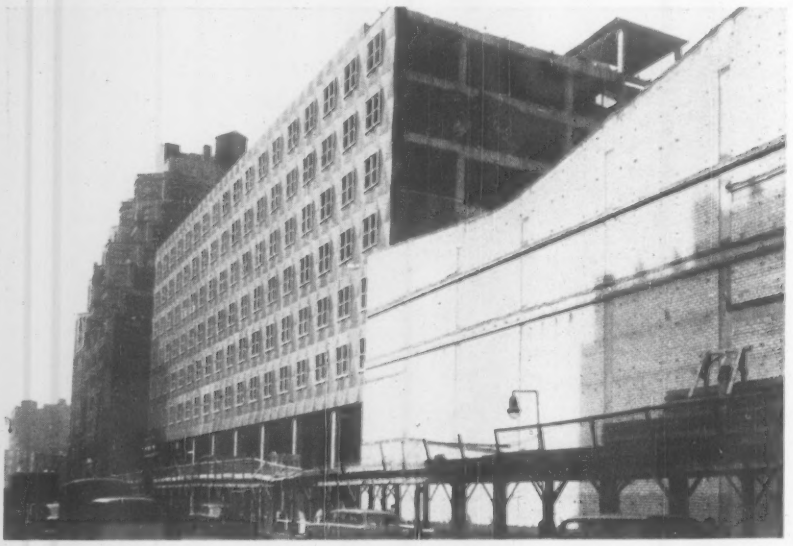
Two-Toned Spandrels Cover Office Building

Two-toned porcelain-enameled steel spandrel panels highlight the facade of the new Mutual Trust Building in Chicago. Each spandrel is composed of five separate panels—three in dark blue, two in light blue. Stainless steel clip-on moldings cover the joints formed by the smaller panels; stainless mullions are also featured. Each panel is made of a 16 ga porcelain enameled steel face sheet, a 2-in.-thick layer of cellular-glass insulation and galvanized interior steel facing.

Architect for the building was Perkins Will, Chicago. A. L. Jackson of Chicago was the general contractor.



School Clad in Brown and Gold Aluminum

The $12.9 million Fashion Institute of Technology now under construction in New York City features a brown-and-gold aluminum facade. The 9 story building, situated in midtown Manhattan, has sepia-colored aluminum panels, 12 ft sq, which are set off by gold-toned aluminum sash.

The panels were formed in four parts and are highlighted by diagonal lines that give even the corners of the building wall a zig-zag appearance. Color accent for the connecting precast stone auditorium building will be provided by gold-colored aluminum mullions. When the building is completed next spring, it will contain accommodations for 1,250 full-time students.

Depot Construction Corp. is the general contractor; Deyoung, Moscowitz & Rosenberg is the architect. Both firms are of New York City.

a progress report—

Glen Canyon Dam Project to open vast new area

Work on huge Upper Colorado River Project well under way

When completed some six years hence, the giant Glen Canyon Dam, Reservoir and Powerplant Project will unlock the riches of a vast, 10,000-square-mile area.

The high concrete gravity arch dam, rising 700 feet from bed-rock, will contain 5,493,000 cubic yards of concrete. Power from the 900,000 KW power plant, located 470' downstream from the dam, will make possible the development of huge resources of fuel, oil, minerals—including uranium—and timber.

When filled to capacity the 28,000,000-acre-foot reservoir will stretch 186 miles up the Colorado and 71 miles up the San Juan, a major tributary of the Colorado. Basically, this project is for river control and power generation.

Largest single dam contract on record

The $107,155,222 contract for the Glen Canyon Dam and Powerplant, largest ever awarded by the U.S. Bureau of Reclamation, went to Merritt-Chapman & Scott Corporation New York. On April 29, 1957, the day the contract was awarded, Merritt-Chapman & Scott signed a contract with Fairchild for aerial mapping of the dam site, reservoir and areas adjacent to the dam site. Flying operations began on May 5, *just six days later!* Advance copies of flying results were delivered on May 26. Other detailed data followed soon after.

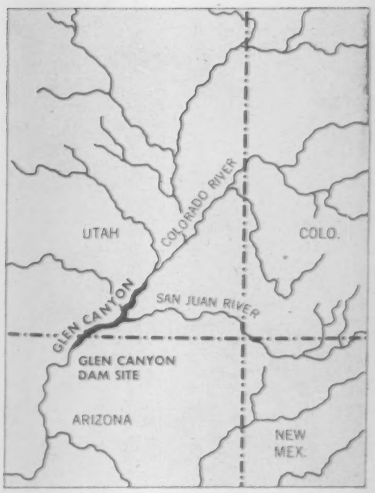
Scale of maps for Glen Canyon

Reservoir: 1" equals 400', 10' contours

Dam site: 1" equals 50 , 2' contours

Areas adjacent to dam site: 1" equals 200', 5' contours

During the past 34 years, Fairchild crews have flown similar mapping assignments all over the free world. Results produced from this experience have led thousands of Fairchild clients to say... if you want it done *fast* and *right the first time*, you can depend on Fairchild.



Site of the 700' Glen Canyon Dam, second in height only to Hoover Dam (726') is located 12 miles downstream from the Arizona-Utah border—370 miles upstream from Hoover Dam.

Walls of the canyon at the dam site are 650' high with overhang in places. This necessitated flight paths parallel to the walls but offset to see under the overhangs.

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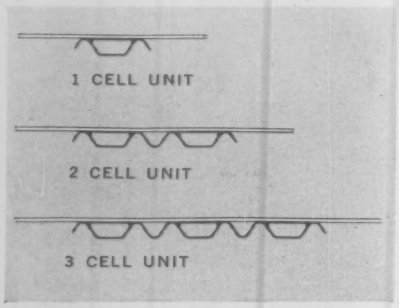

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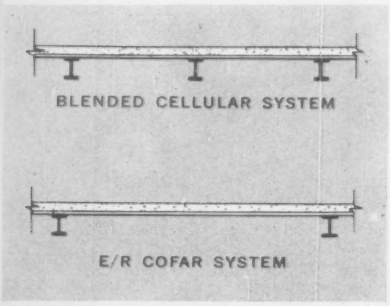
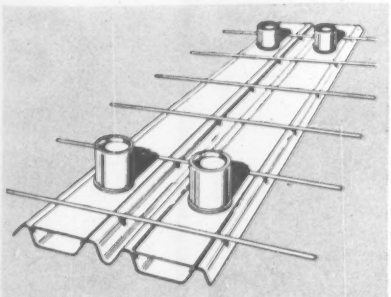
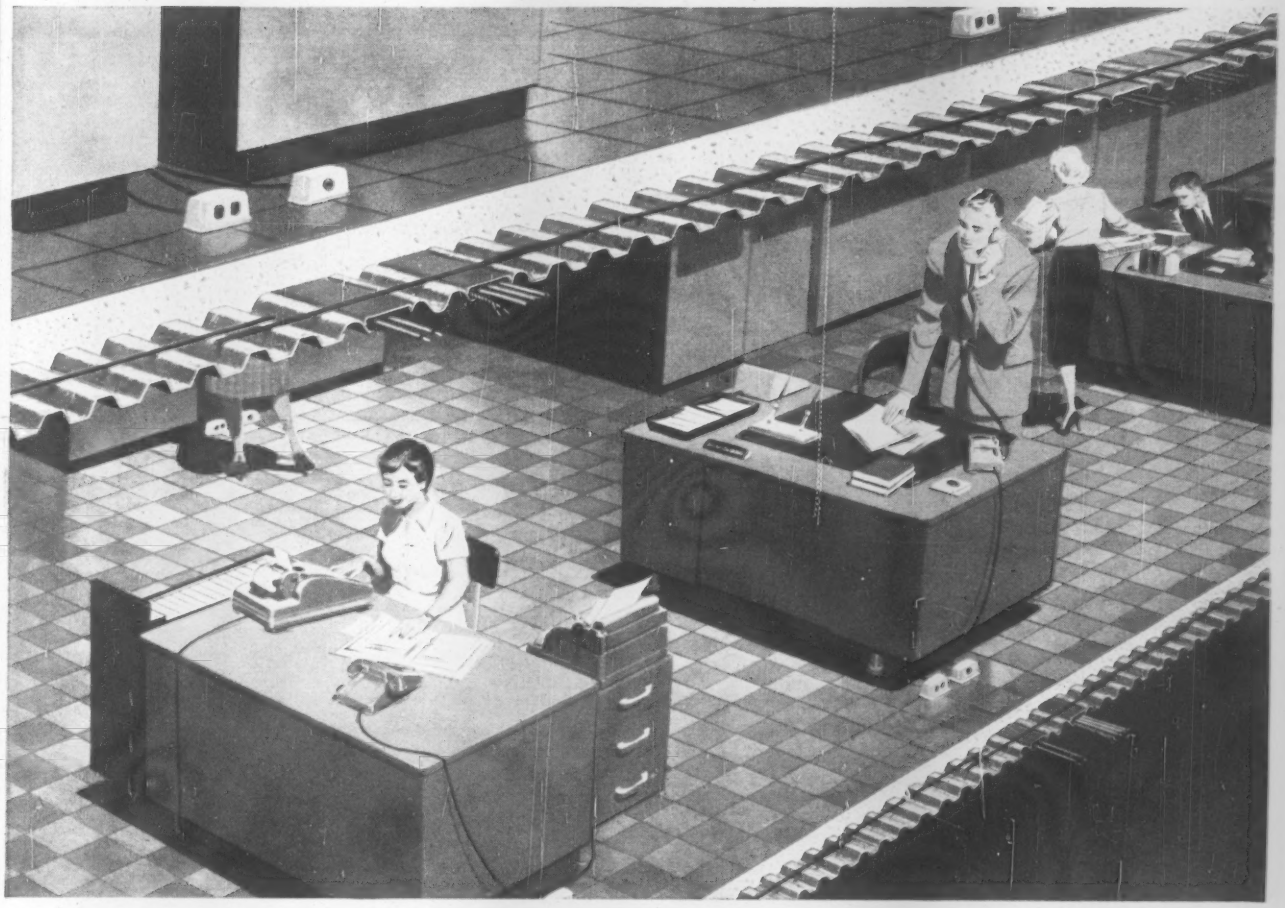


LESS FRAMING. Cofar reinforced concrete construction permits wider spans, saves on structural framing costs, speeds up building completion and permits earlier occupancy by the owner.



PRE-SET INSERTS. Costly concrete drilling is eliminated by optional pre-set inserts. Install outlets after building is occupied! After-set inserts may also be used with E/R Cofar.



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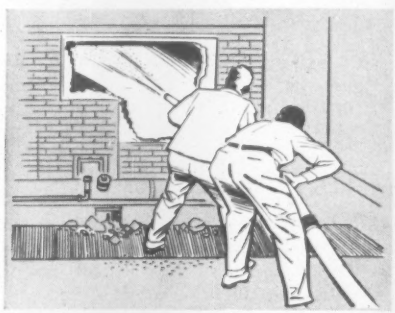

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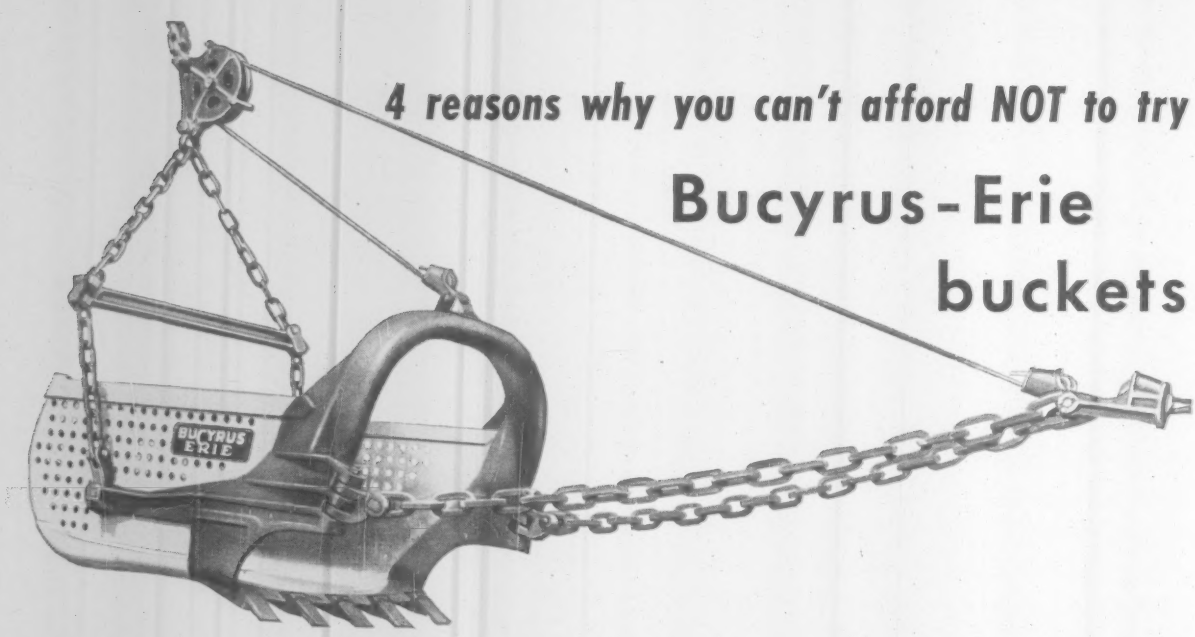

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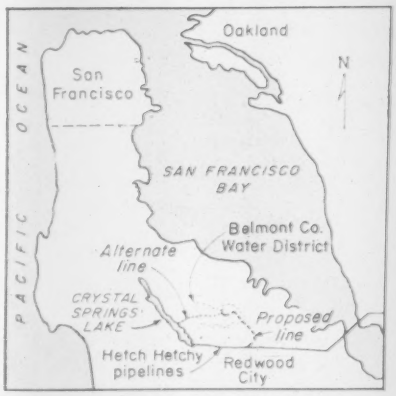
BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

Northwestern Engineering Company, Denver, Colorado, uses its Bucyrus-Erie 2-yd. BM bucket on relocation of Colorado Highway 65.

Least costly scheme for expanding California city's water supply involves tapping Hetch Hetchy system with 30,000 lin ft of pipe, 10,000 ft of it threaded inside an old line



Abandoned 36 inch Line Would House New 18 inch Water Main

An 18 in. concrete pipe will be slipped inside an abandoned 36 in. line as one step in providing a new water supply for the Belmont County Water District in California. This procedure is expected to save about $30,000—figured at $3 per foot for 10,000 ft.

The pipe threading work will be part of a construction program aimed at developing a new 5 mgd source of supply for the district.

The district, which includes Belmont, Calif., and some surrounding area on the San Francisco Peninsula, has had a critical water supply problem, largely due to rapid growth. During peak summer demand, water use has been limited with garden and lawn sprinkling severely restricted. The area now has a population of 11,000. Ultimate population is predicted at 27,000. And the 5 mgd supply is expected to take care of both population growth and future industrial development.

The San Francisco Water Department serves as source of supply for the Belmont County Water District—as it does for most of the communities on the San Francisco Peninsula. But the district must make its own connection with the parent system.

Present Belmont supply comes through a 36 in. laminated iron pipeline constructed in 1887 to bring water to San Francisco from well fields on the east side of San Francisco Bay. This line supplies other areas in addition to Belmont and is overtaxed in peak demand periods. In addition, San Francisco officials want to take it out of service because of its age and uncertain condition.

Consulting civil engineer Lawrence G. Brian of Redwood City, Calif., studied several possible means of providing a new connection with the San Francisco system for the Belmont County Water District. One that looked attractive and had much local support involved bringing water direct from Crystal Springs Lake—a major San Francisco reservoir—some 16,000 ft to storage on a hill behind Belmont. This would take water from an elevation averaging about 275 ft and pumping it nearly 400 ft. Although the lake is an assured source of supply, this system is made expensive by necessity for an intake structure and by the annual pumping cost.

The plan recommended by Consultant Brian would tap into two main pipelines on San Francisco's Hetch Hetchy system north of Redwood City. It would involve a longer pipeline—nearly 30,000 ft. But 10,000 ft of that would include snaking the 18 in. concrete pipe inside an existing 36 in. abandoned main. And this proposal would bring the water direct to the downtown commercial and industrial areas—where it is most needed—at a substantial pressure. (The hydraulic gradient at the point of intake would be about El 300 whereas these areas are lower than El 50). Pumping would be required for higher level residential areas.

• **Thread through abandoned line**—The pipeline would be 18 in. dia precast concrete cylinder type. In installing this pipe inside the existing 36 in. line (an abandoned portion of the laminated iron pipe now supplying Belmont) holes would be cut at 300 or 400 ft intervals. The 32 ft long 18 in. dia sections would be inserted in these holes. The joint space at the bell end of the pipe would be buttered with cement mortar and the spigot end containing a single rubber gasket would be pushed into the bell causing the cement mortar to fill completely the annular space between the ends of the two pipes. Excess mortar would then be removed by an inflated swab or squeegee. Exterior of the pipe would be grouted with a quick-setting cement mortar.

The plan contemplates use of plastic pipeline spacers that would be banded around the concrete line at appropriate intervals. This would hold the pipe away from the old 36 in. line and obviate a cathodic protection system. And the plastic bands would act as skids so the 18 in. pipe can be pushed down the 36 in. pipe to expedite installation of the smaller pipe.

Cost of this scheme is estimated at $548,000. With $14,000 the average estimated annual system operating cost, there results a total annual cost of $50,400 (based on capital recovery of initial cost in 40 years at 6%). The plan that would pump direct from Crystal Springs Lake is estimated to have a $76,900 average annual cost. And this does not include a possible filter plant which would not be necessary with the less expensive plan.

Bowing to Progress

Old Philadelphia area a redevelopment target

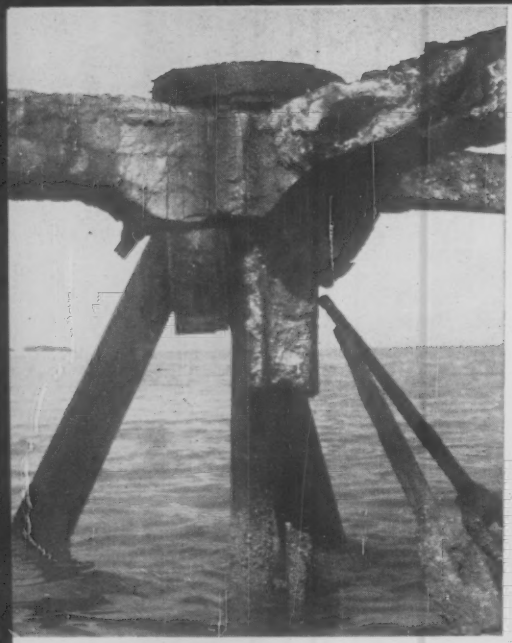
Philadelphia's $100 million Eastwick redevelopment project has been given final approval by the City Council over protests of residents in the affected area. The project seems headed for realization after eight years of planning, but a formidable relocation effort lies ahead.

Eastwick is in southwest Philadelphia near the International Airport. The area, sometimes called the Meadows, is one of the city's oldest. Its inhabitants have been there a long time, many in houses their families have owned for generations. Now they face dispossession, as 45% of the houses will be condemned in proceedings to begin within 10 months. The other homes will either be moved or left where they stand.

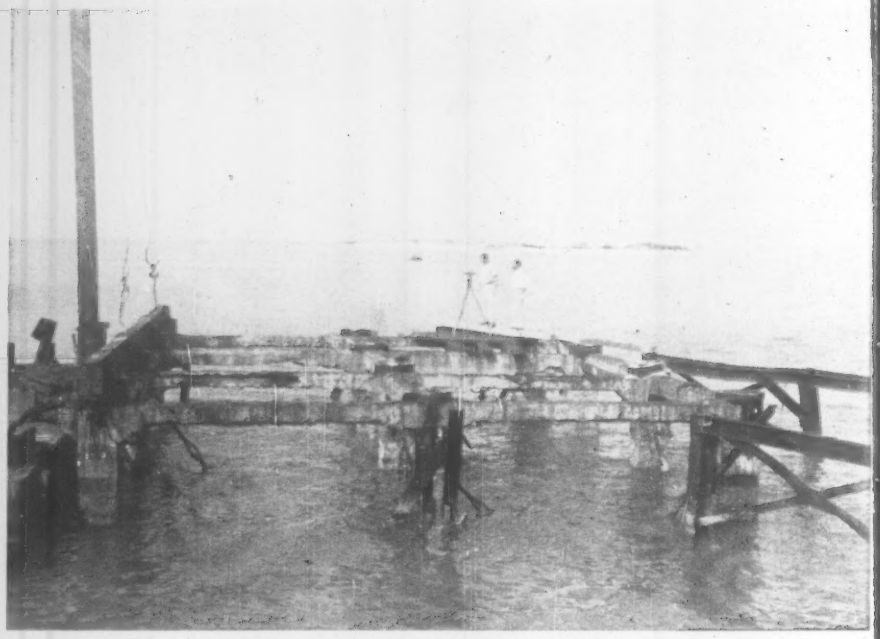
The project involves clearing 2,506 acres, of which 1,200 acres must be raised as much as eight feet to reach sea level. Between 8,500 and 10,500 houses will be built for sale, and 1,400 to 1,700 units for rent. In addition to the residential area and land for schools, churches, shopping and recreation facilities, a large sector will be reserved for development as an industrial park.

The project was first certified by the City Planning Commisison in 1950. Two years later federal funds were allotted for surveys and planning. Then, in 1957, a federal grant of $22 million was given to the Redevelopment Authority. The City Council has had Eastwick under consideration since January.

The filled and cleared land is expected to sell for $43.2 million, leaving $57.4 million to be spent by private developers, the city and the federal government.

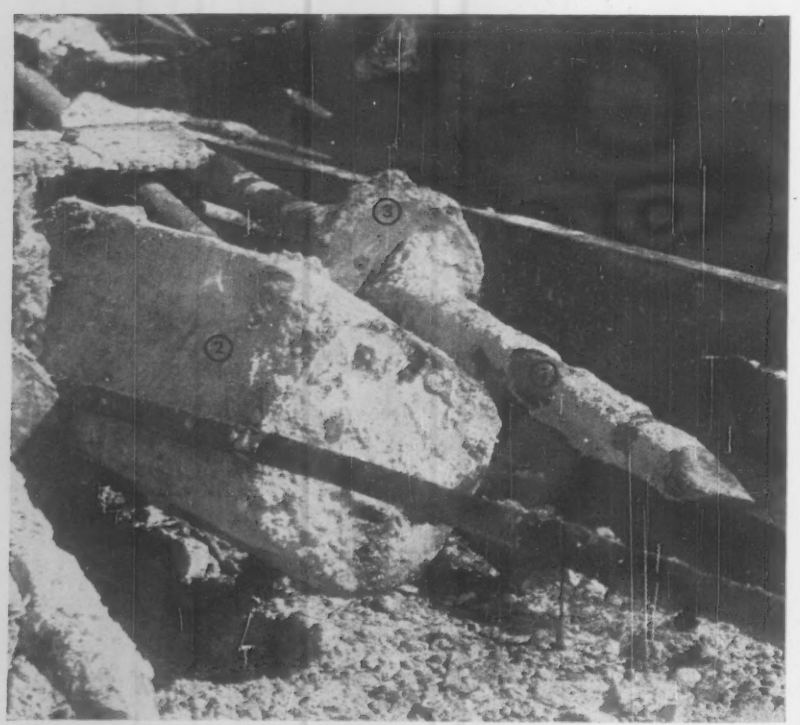


TIE-RODS, of wrought iron, had rusted away and most of the concrete covering piles and girders had spalled, making further rehabilitation of old Pier A at the Key West Naval Station economically unfeasible.



Solid wrought iron piles supported superstructure of old pier.

A Look at Old and New in Methods



PILE-SETTING METHOD in old pier: Wedge-tipped wrought iron pile (1) was driven into cypress wood block (2) that had been set in hole gouged out of rock bottom. Pile was stopped on block with cast-iron collar (3).

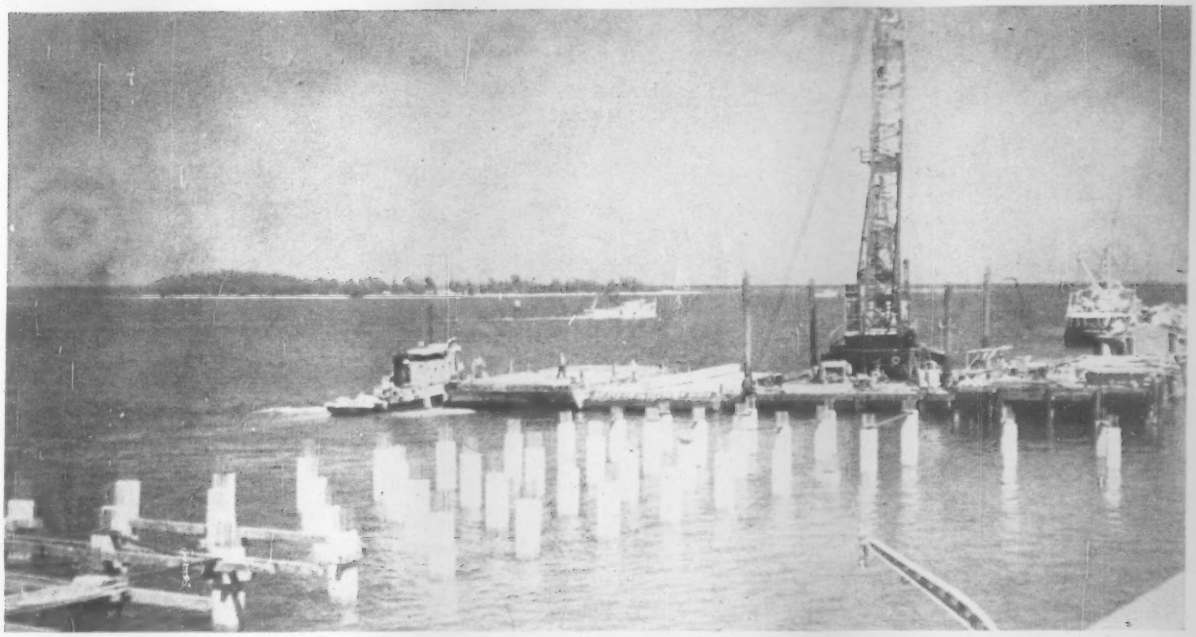
CDR J. W. Schwartz, CEC, USN
Formerly Resident Officer in Charge
of Design and Construction
U. S. Naval Air Station
Key West, Fla.

Some of yesteryear's and today's construction methods and materials were on view for a quick comparison recently when old Pier A built in 1898 was demolished and replaced at the Key West Naval Station, Fla.

Whereas the modern prestressed concrete pile is used in the new rigid-frame-design pier, solid wrought iron bearing piles supported the superstructure of the old pier.

Substructure for old Pier A started with 2-ft-square, 6-ft-long blocks of tough cypress wood inserted in holes gouged out of the rock water-bottom. Solid wrought iron bearing piles, 6 in. in diameter and with wedge-shaped tips, were driven into each of the blocks. Then, 6 ft from the tip of the pile a cast-iron collar was bolted on to provide a stop on the block. Wrought iron diagonal tie-rods braced the piles.

Substructure for the new pier is made up of 122 precast, prestressed concrete piles, 22 in. square and varying in length from 35 to 40 ft. The piles are set in 5-ft-deep holes cut into the rock foundation by a square knife-



Prestressed concrete piles are used in new rigid frame design replacing the 60-year-old pier.

and Material

edged frame that produced holes slightly larger than the piles.

After being inserted in the holes, the piles were driven to refusal with a few blows of a steam hammer. Then, sufficient bottom material was vibrated into the small space surrounding each pile tip, in effect, to cast the piles solid into the rock foundation.

One-inch dowels were left projecting from the ends of the piles to be cast into the caps for a rigid joint. The piles are spaced 15 ft c-c and bridged by 15x24 in. precast concrete beams. A concrete deck was cast in place.

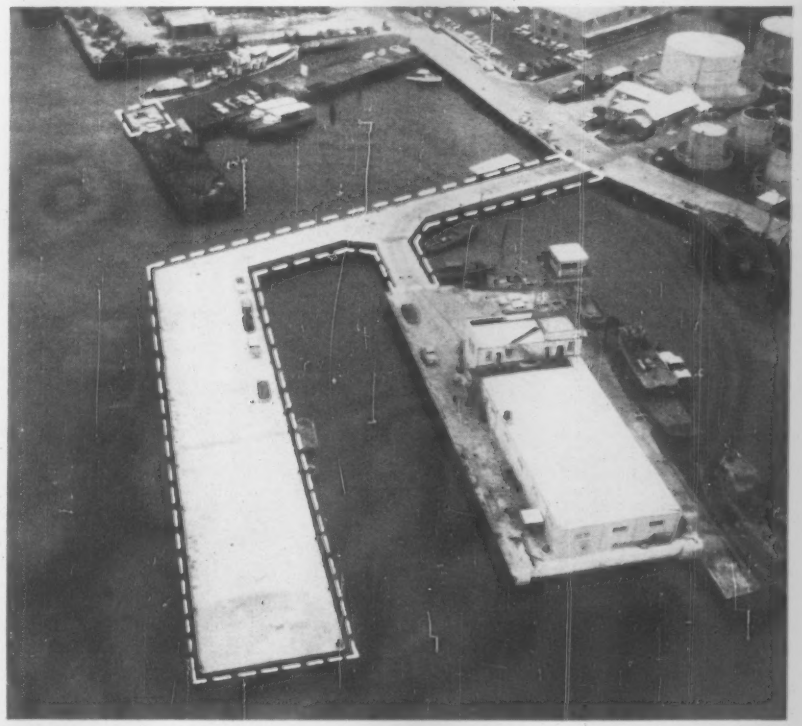
In addition to normal bottom reinforcing steel, all structural elements were reinforced over the supports for negative moments and continuity.

The pier consists of an approach 25 ft wide by 270 ft long and a main section 55 ft wide by 285 ft long at an angle of 70 deg to the approach.

The new pile and method of setting will have a high mark of effectiveness at which to shoot. For when it came to removing the piles of the old pier, some of the cypress blocks came up with the piles, but most of them remained solidly in place. And although tie-rods had rusted away and most of the original concrete had spalled, the wrought iron piles themselves were in excellent condition, even after being subjected to the corrosive action of Key West's warm salt water.

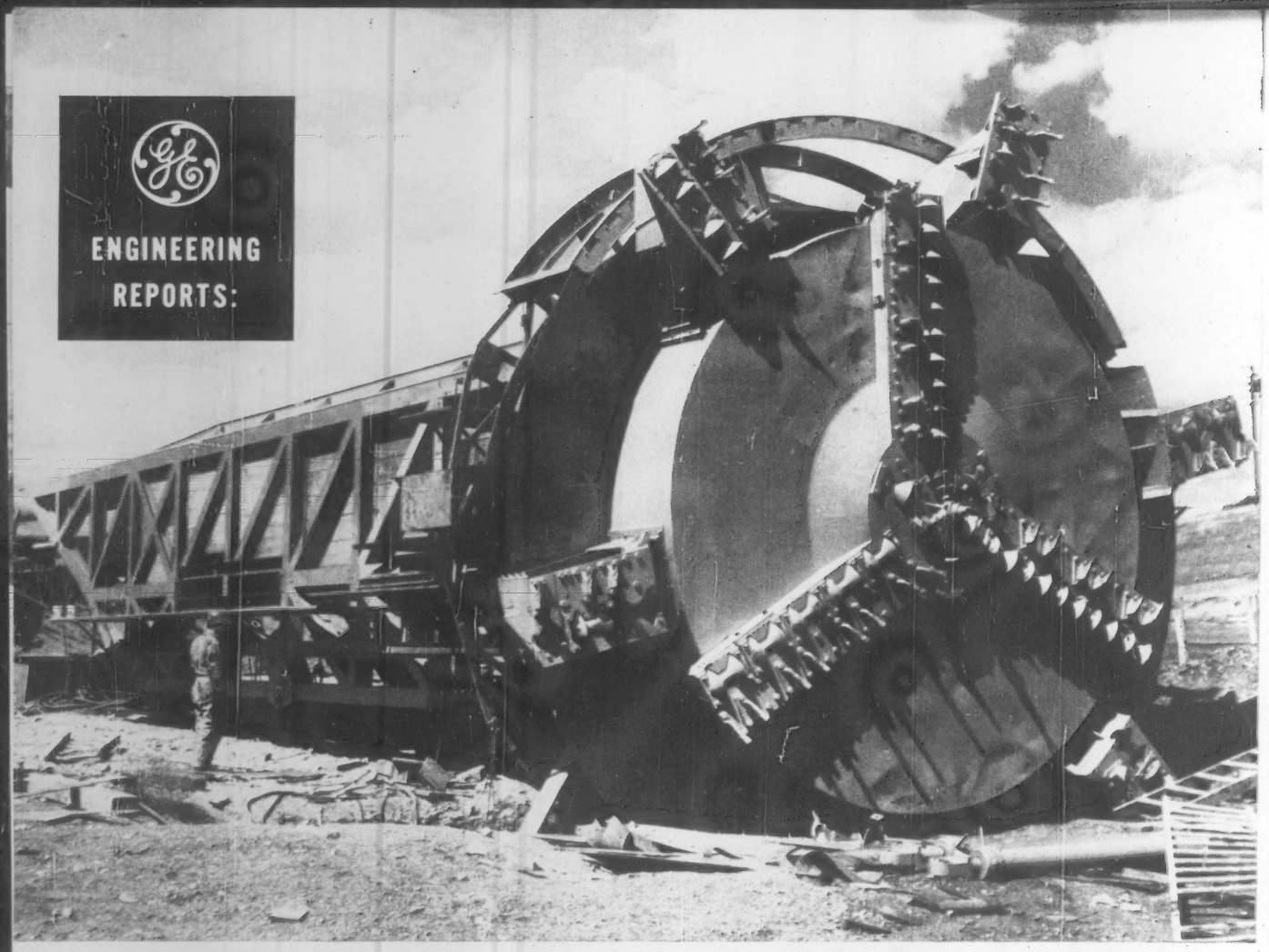
The new pier was designed by engineers, Frederic R. Harris, Inc., New York. Contractor was Diamond Construction Co., Savannah, Ga.

Contracts for design and construction were made by the then Officer in Charge of Construction, Sixth Naval District, Charleston, S. C., Captain P. Corradi, CEC, USN, who is now Deputy Chief, Bureau of Yards and Docks.

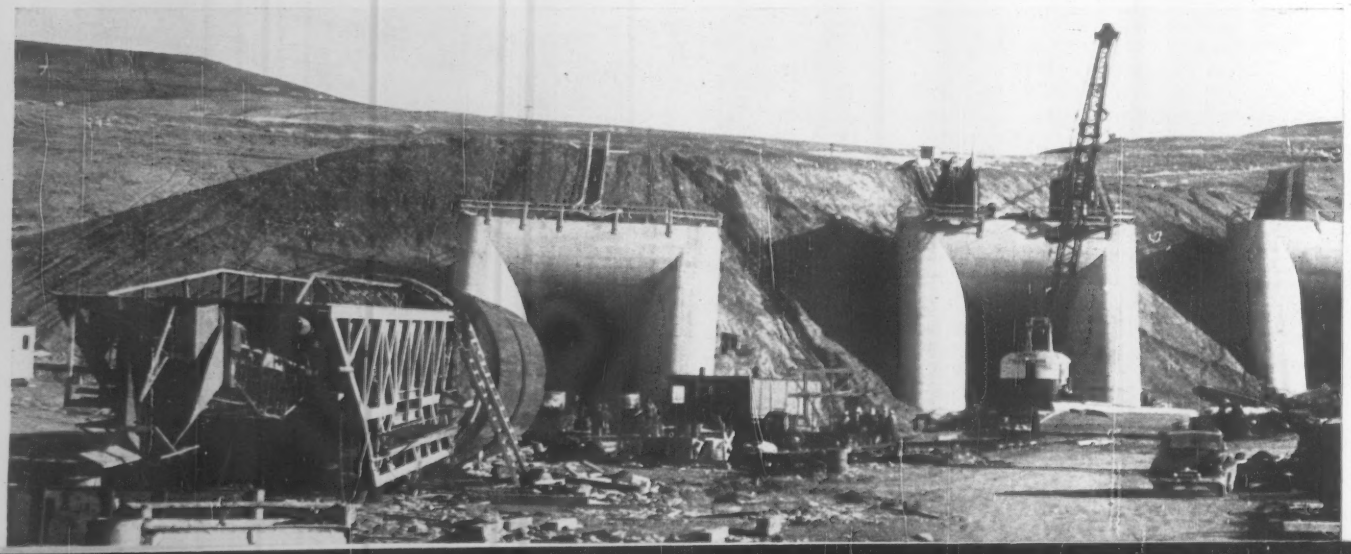


NEW PIER occupies site of old facility. Construction included a short stub and mooring platform (top) built into corner of another old pier still in use. Fender system is 12 x 12 in. timbers hung from structure and extended 3 ft below mean water mark.

ENGINEERING REPORTS:



HOW ELECTRIFIED MOLE WORKS: A roller and tooth arrangement on 26-foot cutting face chews away shale and dumps it on conveyor which hauls rubble back through tail to waiting trucks. Two concentric cutter heads turn in opposite directions, and the machine can be raised, lowered or swung from side to side to alter direction of cut. Digger's reliability depends largely on performance of two 200-hp G-E wound-rotor induction motors geared to drive cutters. Exact forward movement into rock face is accomplished with highly dependable G-E 25-hp motor furnishing power to hydraulic jacks to propel mole. Centralized operating control plus short-circuit protection are provided by General Electric motor controllers. Compact 167-kva G-E transformers step down power supplied by cable from diesel-generator outside. Creative engineering teamwork contributed to successful development of this unique digger for Oahe Dam Project. James S. Robbins and Associates, Seattle, designed and built the mole for Mittry Constructors of Los Angeles under license from Goodman Manufacturing Co., Chicago. G-E engineers worked closely with Robbins to facilitate planning and installation of General Electric equipment powering the machine. Result: a reliable, *electrified* construction tool that has set new records in productivity and safety in the face of extraordinary conditions.



Electrified construction machinery pays off!
Round-the-clock operation plus savings in
time, money and manpower are achieved as . . .

General Electric equipped "mole" drills 6 tunnels at Oahe Dam in record time

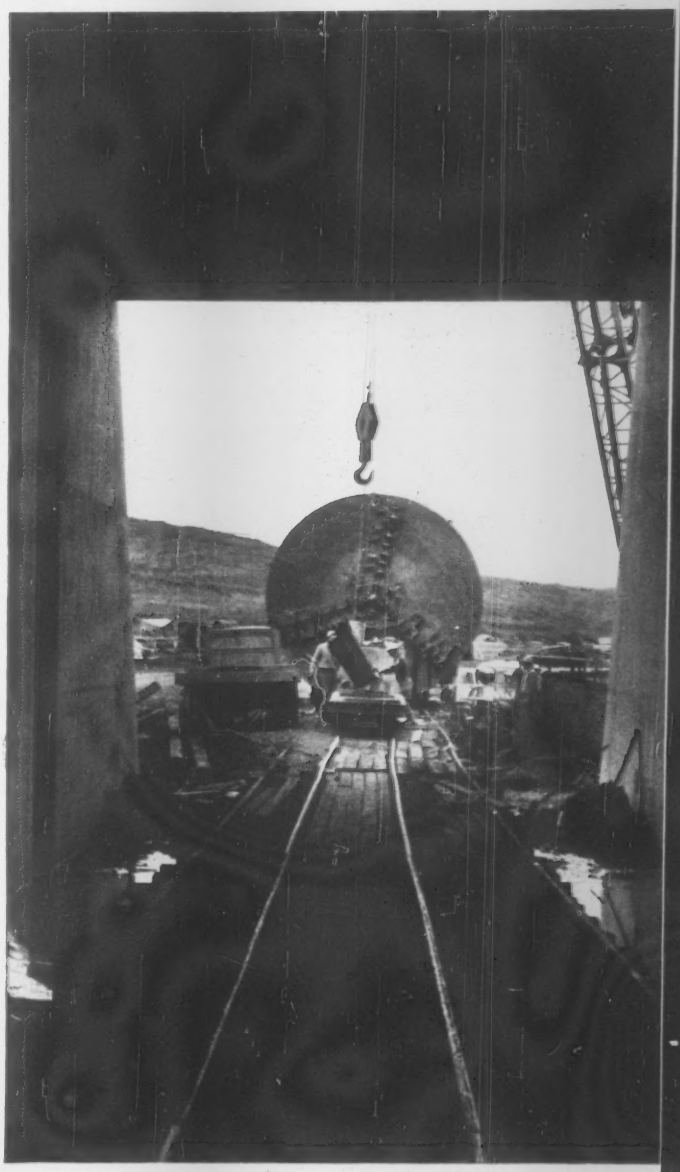
The giant tunnel digger at the left dramatically emphasizes how *electrically-powered* construction tools can slash time, costs and dangers. At Oahe Dam Project in South Dakota, two General Electric equipped diggers recently completed boring six 3400-foot tunnels in one-third the time hand-blasting crews would have required! Despite high temperatures and a constant humidity of 95% in the tunnels, reliable G-E equipment powered these moles accurately and efficiently throughout weeks of continuous burrowing operations.

CUSTOMER SATISFACTION with performance of G-E powered mole is expressed by Project Engineer J. L. Feller of Oahe Constructors*: "General Electric equipment saved an indeterminate amount of time, money, manpower, materials, power and space. Maintenance on both mining machines was very low . . . no breakdowns. General Electric 200-hp drive motors gave no trouble . . . good products. The very fact this mining machine was designed as it was, made the tunneling job safe."

ON YOUR NEXT PROJECT, *electrified* construction tools can pay off in the same way for you. To help solve your difficult construction problems General Electric offers system-engineered electrical equipment designed to raise tool productivity. For more information, contact your nearest General Electric Apparatus Sales Office. General Electric Company, Schenectady 5, New York. 664-48

Engineered Electrical Systems for Heavy Construction Tools

GENERAL ELECTRIC



TUNNEL SIZE is suggested by view from one of six entrances of face of mole that dug it. Tunnels average 3400 feet long.

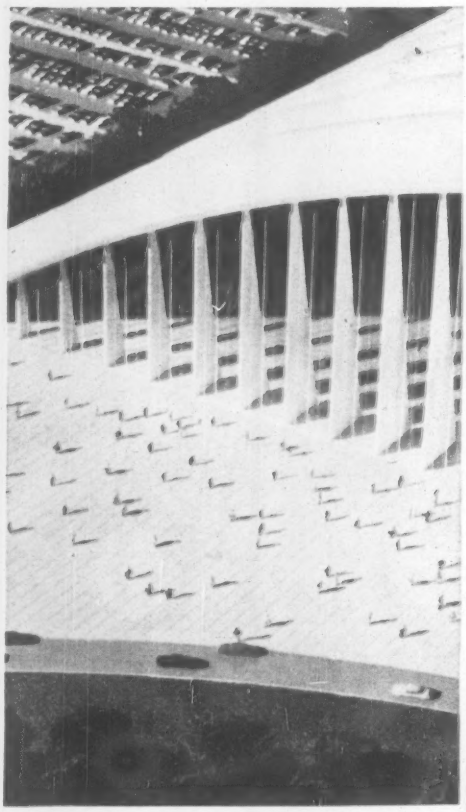
* *Project subcontractors to F. K. Mittry and F. K. Mittry, Jr., owners of Mittry Constructors. Members of Oahe Constructors, a combine, are: Foley Bros., Inc., St. Paul; Winston Bros. Const. Co., Minneapolis; C. F. Lytle Co., Sioux City, Iowa; Donovan Const. Co., St. Paul; Missouri Valley Const. Co., Leavenworth, Kan.*

Tomorrow's Daring Buildings

Is it feasible to build a 1,000 ft wide building without columns? Can bearing-wall construction be used for a 90-story skyscraper? Are helical skyscraper apartment houses practical?

Whatever the final answers to these provocative questions may be, designs for these and other equally spectacular structures have been prepared by outstanding architects and engineers, generally for use for specific projects.

A number of these challenging designs were discovered by the Universal Atlas Cement Co., a U.S. Steel Corp. subsidiary, and published in a series of advertisements in national magazines. By demonstrating the foresight and vision of some progressive designers, as well as the prowess of the construction industry, these buildings for tomorrow could be a stimulant to the imagination of other designers today. It is for that reason that they are published here, along with brief comments by their designers.



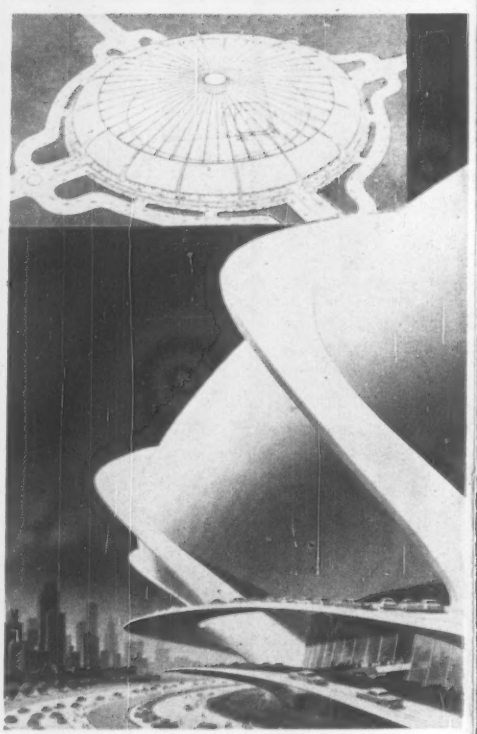
1. Arched thin-shell roof will span 1,000 ft

To build a roof straddling 1,000 ft is possible with today's high-strength materials and tools—but it would be a stupendous achievement if it could be done economically. With this objective, K. P. Billner, president, Vacuum Concrete, Inc., Philadelphia, Pa., and Boyd G. Anderson, partner in the consulting firm of Ammann & Whitney, New York City, suggest a scheme for a 1,000 ft arched roof.

The span would exceed by 280 ft the distance between supports of the thin-shell roof of an exhibition hall near Paris (ENR April 17, p. 45).

Designers Billner and Anderson call for thin-shell reinforced concrete arches —actually inverted catenaries, to eliminate dead-load bending moments—curved transversely also, for greater strength. Each of the arches would be 80 ft wide and would rise 200 ft. The building could be made as long as desired by placing arches side by side.

Each of the arches would be built of sections precast on the ground and erected on movable falsework. After each section has been cast, excess water would be removed by vacuum, permitting another section to be cast on top immediately. Three sections could be completed per day, and a total of 15 piled up, without bottom forms other than for the first one. Later, the precast units could be removed with a vacuum lift for transportation to the site.



2. Arena will be a 1,200 ft dia plastic and concrete bowl

Lev Zetlin, consulting engineer, New York City, suggests a spectacular lightweight design for an all-weather arena capable of seating as many as 200,000 persons.

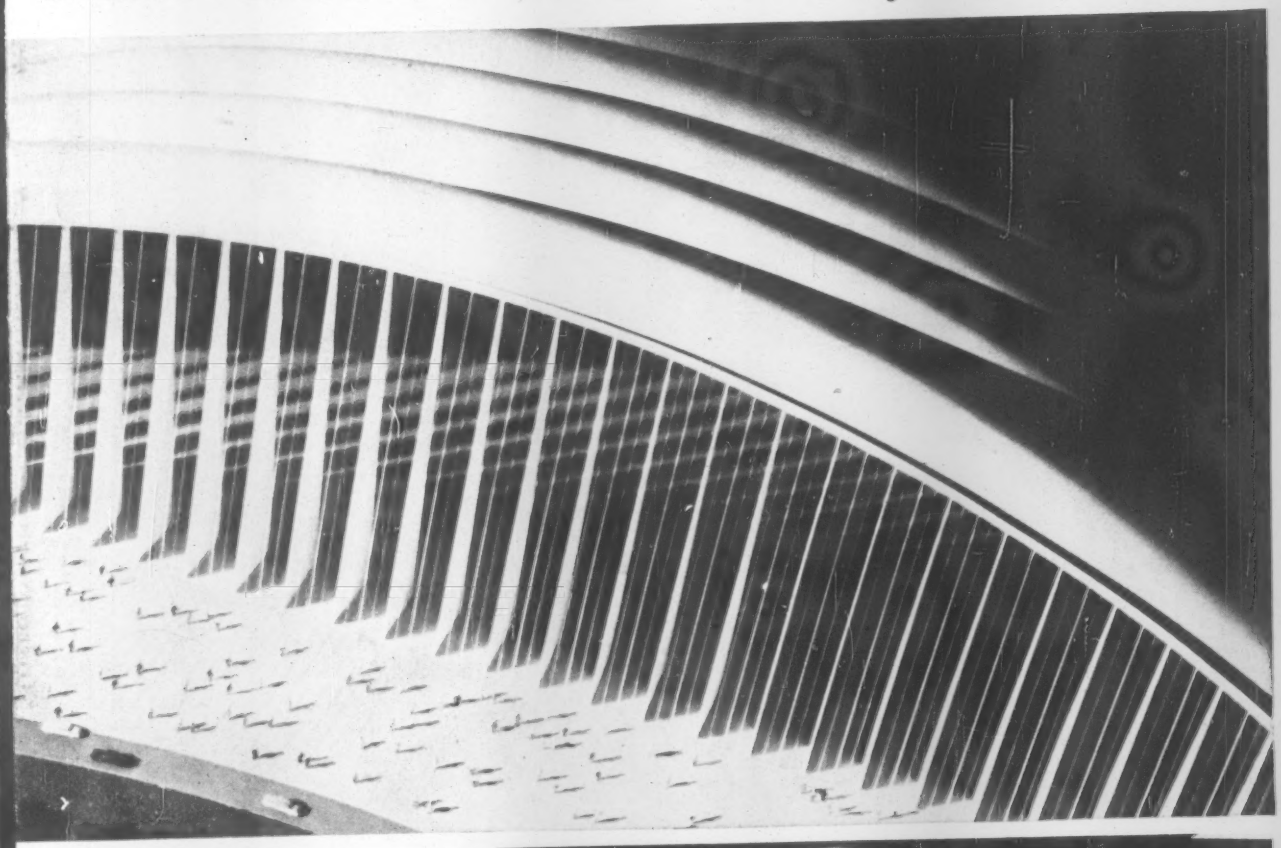
A transparent plastic roof would be supported on steel cables strung across the rim of a prestressed concrete, thin-shell bowl. Prestressed concrete seats would span between ribs spaced about 100 ft apart along the sides of the bowl. Wide ramps, also spanning between ribs, would provide parking space.

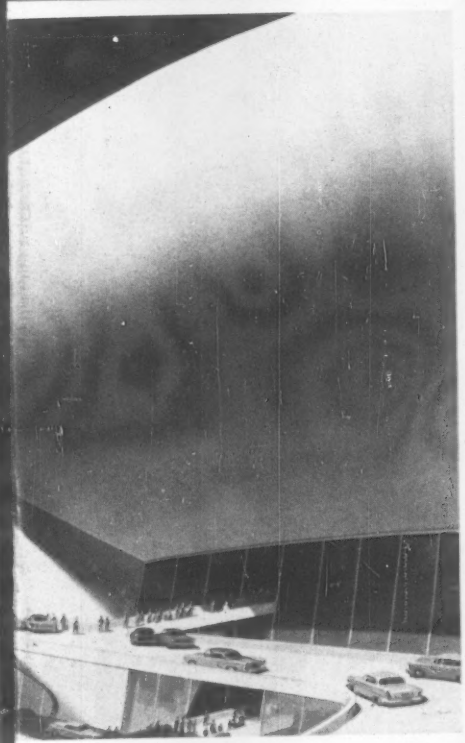
Mr. Zetlin says the roof construction would be relatively light—about 12 psf for a span of about 1,200 ft. The roof cables would hold the structure in equilibrium. Pretensioned and arranged in a double layer, they would eliminate flutter in the roof due to the wind or other dynamic effects.

An open stadium of this type, Mr. Zetlin claims, would have much heavier support ribs on the sides; so this type roof also should reduce the cost of the structure below it. There should also be an appreciable secondary saving in mechanical ducts and other installations. Space between the two layers of cables could be utilized for air conditioning and other mechanical equipment.

The roof could be prefabricated, he points out, and erected in a very short time with a temporary tower providing support at the arena center.

That Can Be Built Today



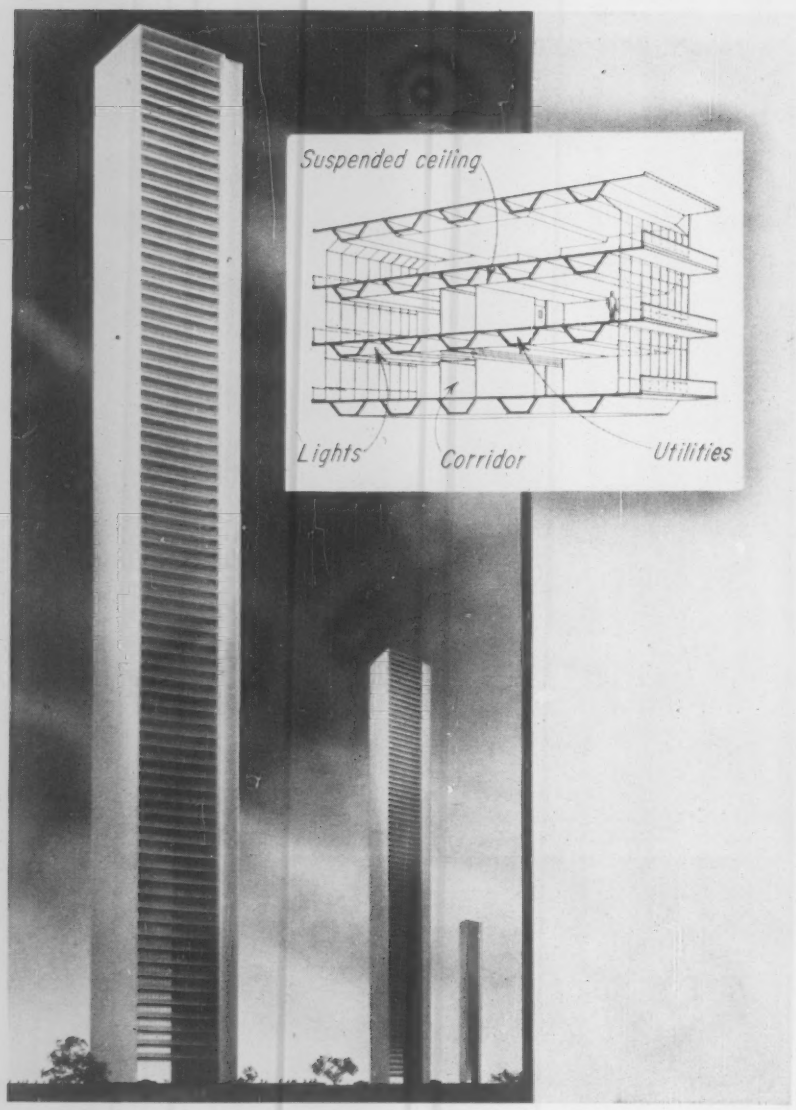


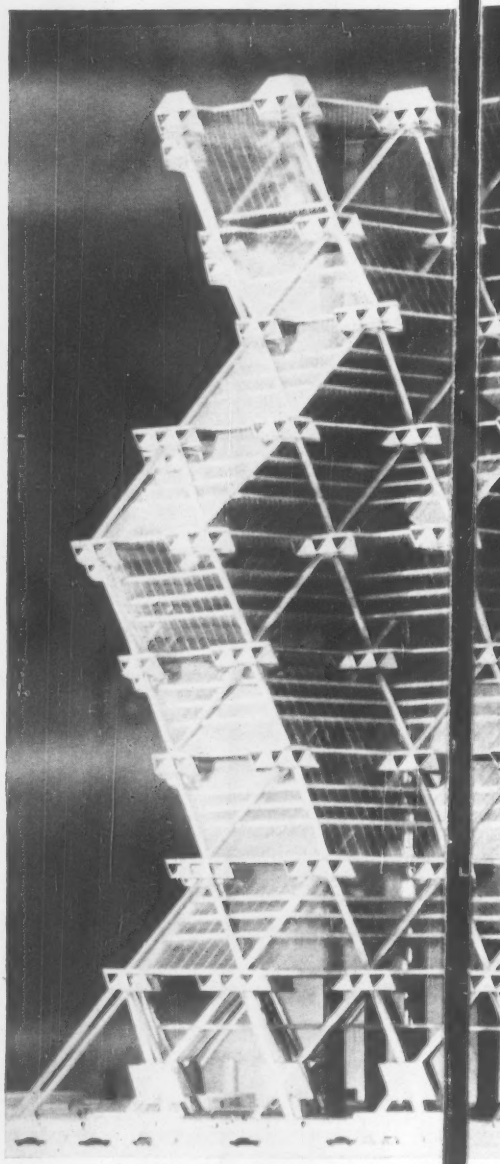
3. Wide auditorium will have no columns inside

An intriguing design for an auditorium for a proposed civic center for Tallahassee, Fla., is suggested by The Architects Collaborative, Cambridge, Mass., and Paul Weidlinger and Mario Salvadori, consulting engineers, New York City. Columns would be eliminated from the interior.

To make the auditorium adaptable for different uses, the designers propose that permanent seating be placed on opposite sides of a central circular arena. The two halves then could be used separately or together.

The roof would consist of a series of thin conical concrete shells, supported on columns at the outer walls and suspended at the center of the building from a parabolic arch that rises 100 ft and spans about 200 ft.





4. Folded-plate skyscraper 90 stories high

Boyd G. Anderson, of Ammann & Whitney, also has investigated the possibilities of reinforced concrete for a 90 story skyscraper. Floors would be long-span folded plates and they would be supported on reinforced concrete bearing walls.

Such a building would be considerably higher than the tallest concrete buildings now in existence or under construction.

With a 3 ft depth, folded-plate concrete floors can provide 80 ft clear-span areas with a nominal 3½ in. slab, the minimum thickness usually permitted by building codes. Longer clear spans can be obtained at greater unit cost by increasing slab thickness or depth of the floor section. Mechanical and electrical services can be incorporated in the corrugations, which also can be used as plenums for air conditioning.

The walls would be designed as deep, rigid vertical girders, which would be far stiffer than conventional multi-column construction. They would taper from a thickness of about 30 in. at the bottom to 12 in. at the top.

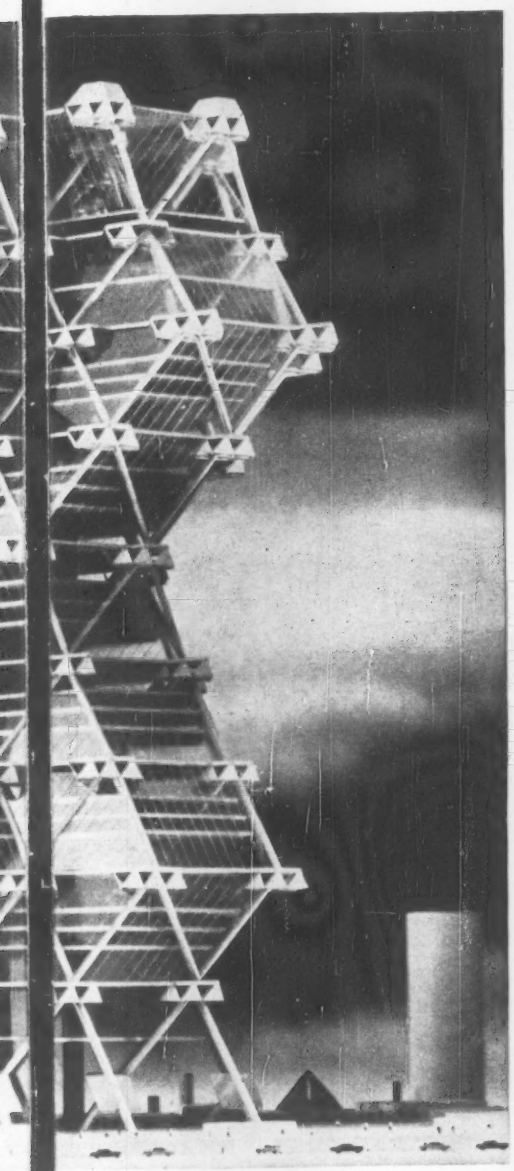
Construction would be economical because floor forms could be used repeatedly. Walls would be built with slip forms.

5. Space frames carry the

"Until now," says Louis I. Kahn, architect, Philadelphia, Pa., "the prevailing approach to tower design has been the many-storied conventional post-and-beam construction with columns designed to appear uniform from base to top. . . .

"The challenge . . . is to evolve more meaningful form out of the nature of a high-rising structure. This form must express: the buttress to wind forces . . . the cumulative force of weight . . . a logical balance between services and usable space . . . variety in floor area and ceiling height. . . ."

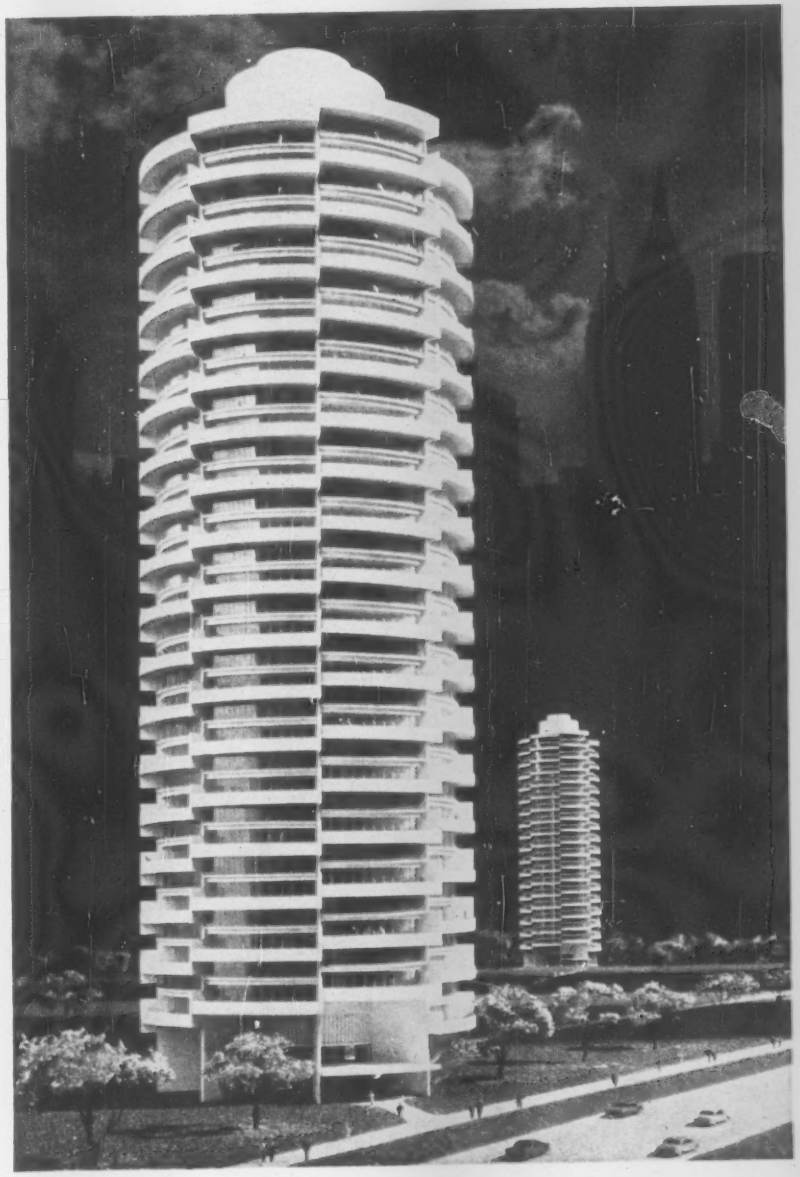
Mr. Kahn and associate Anne Gris-



floors of a 616 ft tower

wold Tyng meet this challenge with a scheme for a 616 ft tower with floors supported on triangular space frames, all plainly visible through a transparent, sun-louvered facade. The sloping columns intersect at levels 66 ft apart, where an 11 ft deep capital houses toilets, substations for mechanic services and storage space. Floors at those levels are part of the space frames.

Floor-to-ceiling height of intermediate floors can be varied. The floor slabs are supported on 3 ft deep trusses. In them are incorporated wiring, ducts and piping, which are carried up through hollows in the columns.



6. Helical design offers expansible apartments

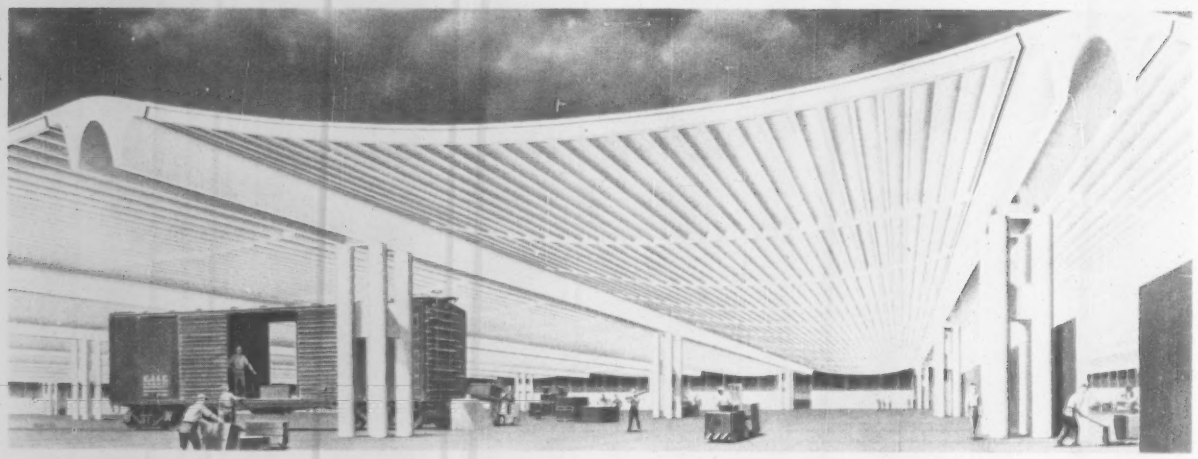
As part of a proposed redevelopment of the Battery Park area of New York City, Webb & Knapp offered to build helical skyscraper apartment houses designed by I. M. Pei and Associates. Estimated savings would be about 20% compared with conventional designs, designer Pei believes.

A typical building would be a cylinder 102 ft in diameter. Each floor level would be a segment of a circle, the apartments occupying a wedge at the glass-enclosed exterior. Elevators and stairs and electrical, plumbing, heating and air-conditioning equipment would be concentrated in the center. Each of the apartment wedges would provide about 800 sq ft of floor area. Tenants would be able to rent as many of these units as they desired.

Spiralling up the exterior of the building, the wedges are a half-level apart. Thus, each unit can be expanded to either side and up and down.

Mr. Pei visualizes the floors supported on eight radial concrete bearing walls, which would serve also as partitions between apartment units. Stairs and elevator shafts would be surrounded by a concrete ring built with slip-forms.

With no columns, apartments could be subdivided as desired.

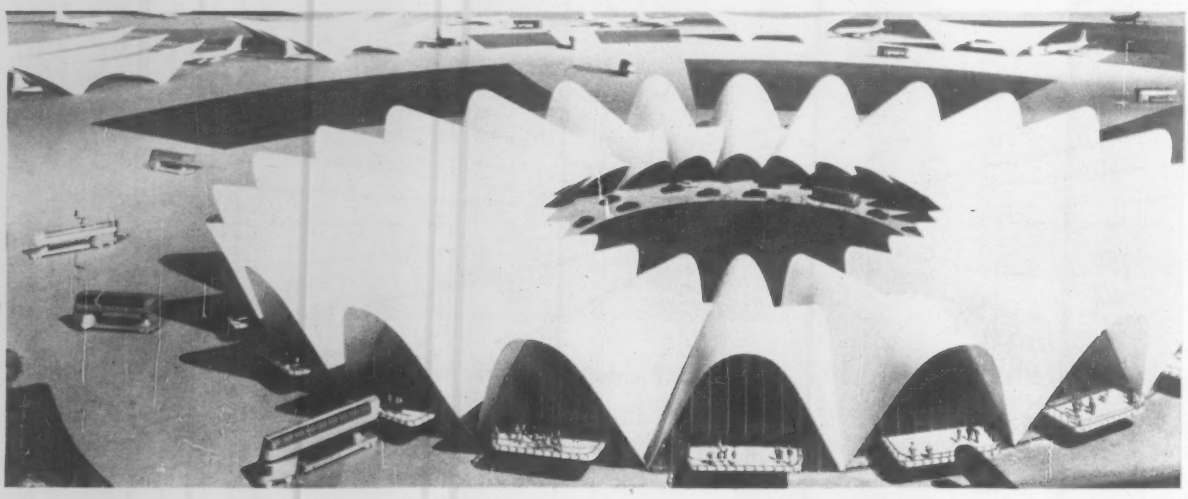


7. Long-span roof for factory allows flexibility in use of space

For the design of a factory for automation, Ulrich Franzen, New York City architect, sets these requirements: maximum horizontal flexibility; maximum column spacing commensurate with economical construction; vertical flexibility; fireproof construction; minimum maintenance; structural system permitting integration of lighting; ceiling with high light reflectivity and at a height that would be reasonable for heated, ventilated and air-conditioned areas. Mr. Franzen proposes a structural system to meet these objectives.

The roof would consist of precast concrete plank supported on steel cables strung between long-span girders. This design would permit long spans with low ceilings.

Minimum bay dimensions, for example, would be 60x110 ft, with cables 20 ft c-c. (A 200 ft span would present no difficulties, Mr. Franzen says.) Atop the roof plank, which spans the 20 ft between cables, a thin concrete slab would be placed, to prevent flutter as well as to supply a surface for roofing. The troughs on the underside of the plank would be used as reflectors for fluorescent tubes.



8. Circular terminal building consolidates facilities, eliminates long walks

Edgardo Contini, chief engineer, Victor Gruen Associates, Los Angeles, proposes an efficient design for an airport terminal building—no long walks, no ramps, no exposure to weather.

It would be the central element of an airport built as a series of concentric circles. Service roads for passenger circulation would be next to the terminal building and progressively farther away would be rings of maintenance hangars, airplane loading stations, aircraft taxiways and finally the runways.

The terminal building would be constructed as a series of interconnected units along a curve. Ultimately, they would be combined into a complete ring.

The annular structure would have two levels—the upper for passenger facilities, the lower for service functions. Passengers would arrive by auto in the core. Then from the terminal's upper level, they would board the top deck of a bus, ride to the plane, and step directly into the craft. Bags would move similarly at the lower level.

A "DAILY DOUBLE" that pays off consistently at the fabulous.. Roosevelt Raceway

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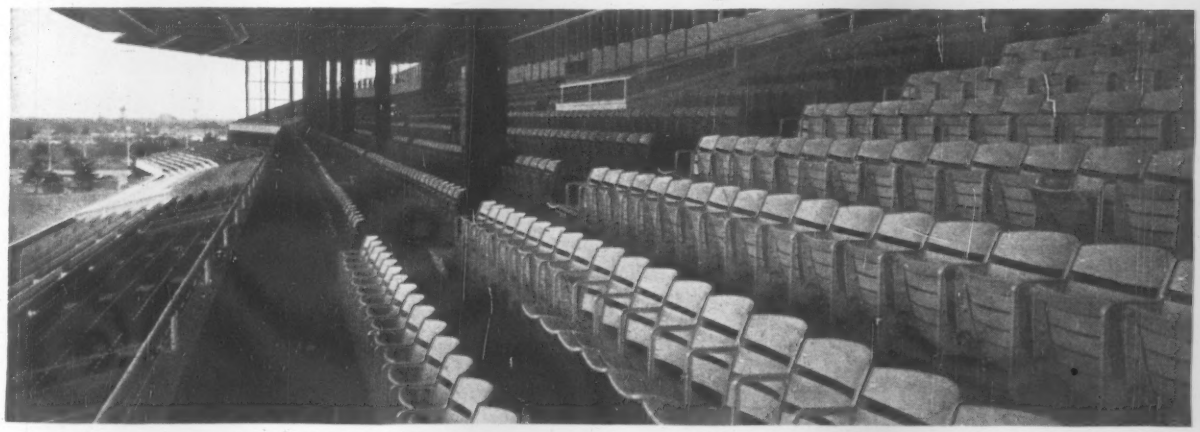

At this new "Dream Track" in Westbury, Long Island, N. Y., from the day of completion, economy and easy maintenance of concrete floors, aisles and stairways have been achieved. The thousands of square feet of concrete floor surface are protected, hardened and decorated with a combination that's hard to beat . . . LAPIDOLITH and SONNOMAR.

LAPIDOLITH* was first applied to the concrete flooring, making it many times harder than ordinary concrete, and dustproof;—followed by a coating of SONNOMAR, Light Gray, to give the concrete floors beauty and utility. The tough, smooth, sealed surface is not only easy to keep clean, but has also resisted the constant scuffing of almost 2,500,000 pairs of feet last year.

SONNOMAR's tough protective film reinforces LAPIDOLITH's effectiveness in depth—for double protection! MAIL THE COUPON NOW for full story.

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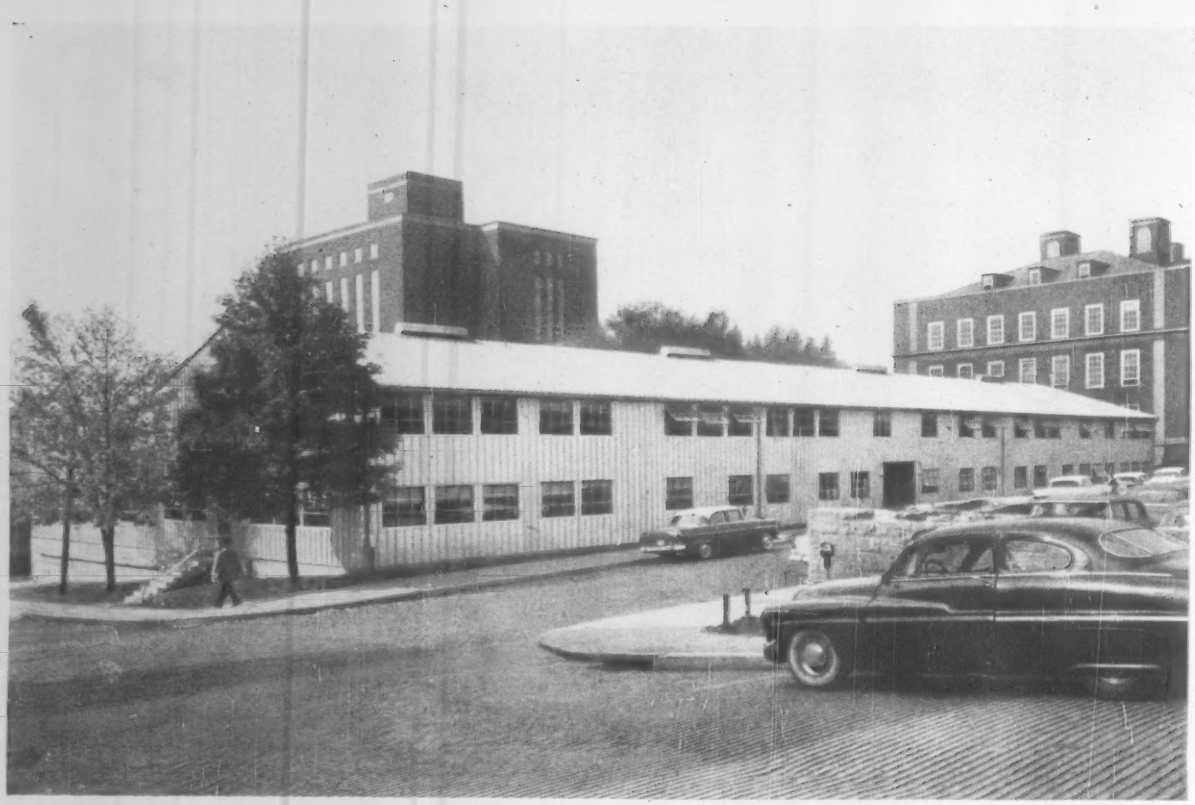
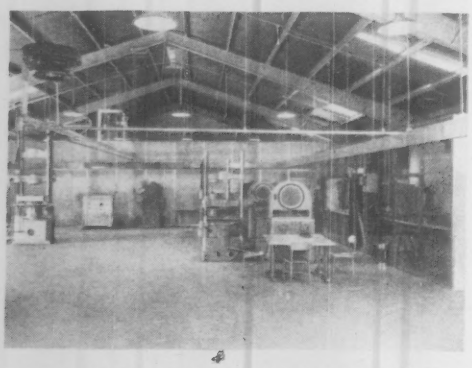


Temporary Engineering Building No. 1. West Virginia University, Morgantown, West Virginia

THIS PRE-ENGINEERED BUILDING

was planned and completed in 6 months



Temporary Engineering Building No. 2. This Butler building was erected at the same time as the larger building above and serves as a testing laboratory for engineering students. Note the clear, overhead space, the column-free floor area permitting use of moveable partitions.

A raging fire destroyed Mechanical Hall at West Virginia University. Even though a new 10 million dollar agriculture-engineering plant was on the drawing boards, temporary facilities were needed quickly. Within six months school engineers designed the building above, the Butler components were shipped from stock and the building was completed and ready for occupancy.

Fast construction is just one of many advantages Butler pre-engineered components offer. Pre-engineered to meet applicable building codes, they save much tedious routine engineering. Mass-produced, they eliminate custom fabrication. Butler's clear-span, column-free interiors afford full utilization of space. Ventilation and illumination can be controlled easily, economically, to provide a superior environment. Future expansion is fast, easy, and economical.

For full details on the advantages and economies that Butler pre-engineered building components offer, contact your Butler Builder. He's in the Yellow Pages under "Buildings" or "Steel Buildings". . . or write direct.

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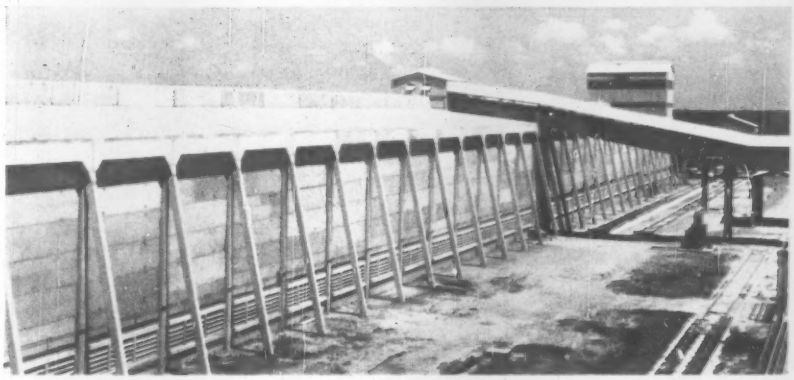
Inside . . .

American Cyanamid's 960 ft long concrete building at Brewster, Fla., has prestressed roof girders spanning its 100 ft width to provide unobstructed storage space below.



Outside . . .

The 960 ft long wall, made of precast units, is braced by prestressed concrete A-frames at 30 ft intervals.

Storage Building Entirely Precast

Joe H. Skillman
Vice President
Lakeland Engineering Associates, Inc.
Lakeland, Fla.

A storage building for American Cyanamid Co. at Brewster, Fla., containing 4 million cu ft of space without partitions or interior columns, has been built completely of precast concrete. In addition, structural members and the roof were prestressed.

The structural members were arranged in an unusual manner to withstand big lateral forces. Also, provision made for belt conveyors in the building is novel.

• **Stiff specifications**—The structure will be used to store and cure triple superphosphate. Because of seasonal fluctuations in demand for this fertilizer, sufficient storage capacity must be provided to permit accumulation of inventory to fill peak requirements. Thus, a very large building is needed, and it has to be low in both first cost and maintenance costs.

To meet these requirements, American Cyanamid specified that the building should have a clear, unobstructed width of 100 ft and clear height of 43 ft. Length was set at 960 ft.

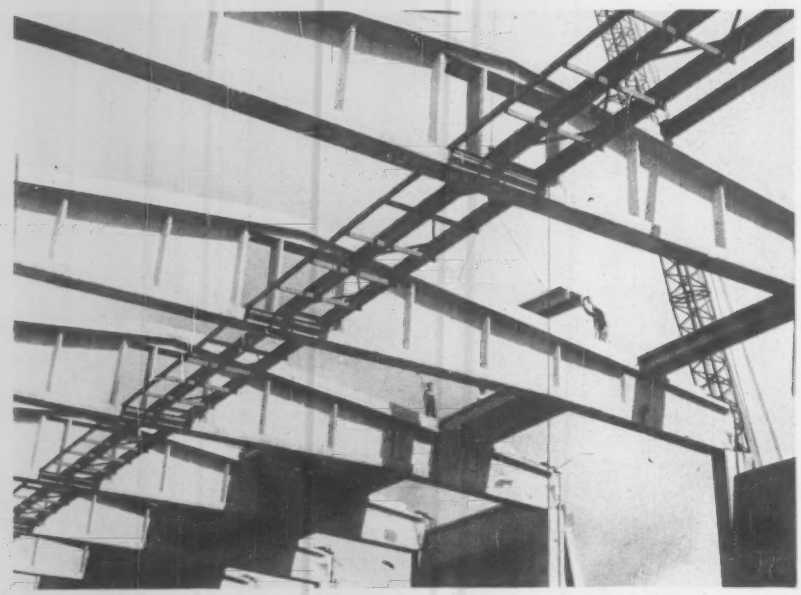
To deposit the phosphate uniformly throughout the storage area, a reversible shuttle belt conveyor is required on the longitudinal center line to feed material to a transverse conveyor for final discharge. Extending the 100 ft width of the storage area, the latter can travel the full length of the building.

American Cyanamid also specified that ventilation must be furnished by natural means only.

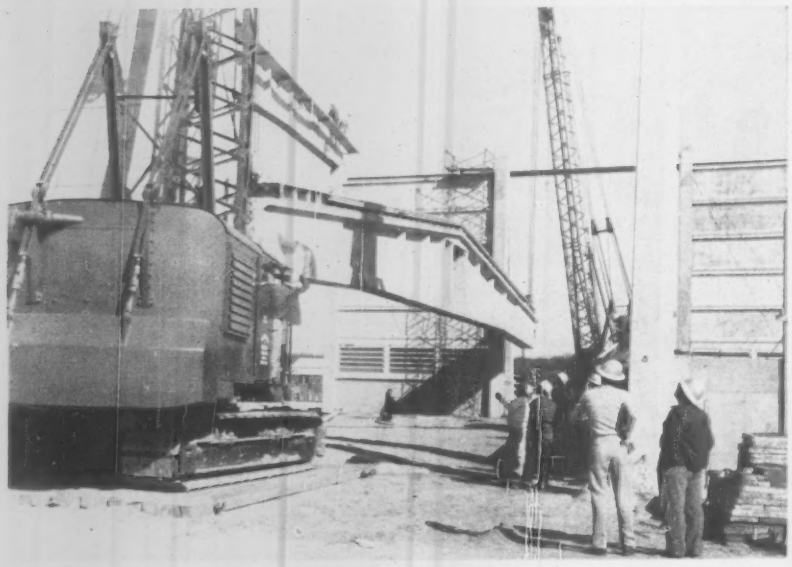
• **Prestressed framing**—In the preliminary design stage, the consulting engineers critically evaluated several types of construction from the standpoint of functional performance, structural economy and ease and economy of erection. The design ultimately developed employs prestressed and precast concrete almost exclusively, making possible application of mass-production techniques to the fabrication of building components and thereby reducing in-place work to a minimum.

The structural frame consists of prestressed concrete columns at 30 ft intervals, prestressed concrete girders and inclined prestressed wind braces or batter columns. The girders span the

. . . Precast building provides 4 million cu ft of storage in one vast room



PRESTRESSED GIRDERS spanning 100 ft have an opening through the web at midspan to permit a conveyor and service walkway to pass through.



ERECTION of the 70 ton prestressed girders was carried out with a crane at each end. The girders were seated on the vertical columns of the A-frames.

width of the building.

Prestressed concrete TT slabs, in turn, span the 30 ft between girders to form the roof deck.

Walls consist of precast concrete channels, 5½ ft high by 30 ft long, that are slid into vertical slots in the columns. The weight of the walls is carried by low retaining walls and grade beams between columns.

Ventilation is taken care of with roof and wall openings. Rising above the center of the roof is a continuous concrete ventilator that provides 4 sq ft of weatherproof exhaust area per linear foot of building. Concrete louvers along the sides of the structure just above the retaining walls allow fresh air to enter near ground level.

• **A-frames resist wind**—Wind loads were an important consideration in the design. The building is in an open area subject at times to winds of hurricane intensity. It has an over-all height of 65 ft. And the walls extend 960 ft without cross bracing from interior walls. As a result, each bay had to be made resistant to the transverse loads.

Wind loads were checked on a scale model in wind-tunnel tests by Prof. Robert A. Thompson, University of Florida School of Aeronautics. The efficiency of the ventilating system at various wind velocities and angles also was studied in these tests.

Several preliminary designs for resisting the high wind loads were considered, including post-tensioned rigid frames, and rejected because of high cost. The simplest and most economical arrangement turned out to be a modified A-frame supporting a roof girder on top, the vertical column carrying live and dead loads and the external, inclined column acting under wind load only.

The vertical and inclined columns are spread 12 ft apart at the base but are supported on a common foundation. The vertical columns are 24x30 in. in cross section and about 45 ft high. They are prestressed with twenty ⅞ in. dia, 7-wire strands. The batter columns are 18 in. square and prestressed with twelve ⅞ in. dia, 7-wire strands.

• **Openings for conveyors**—Seated on top of the vertical columns, the 100 ft prestressed girders are 5 ft deep at the supports and 10 ft at midspan. As a result, flange stresses will vary little along the length of the girders under design load.

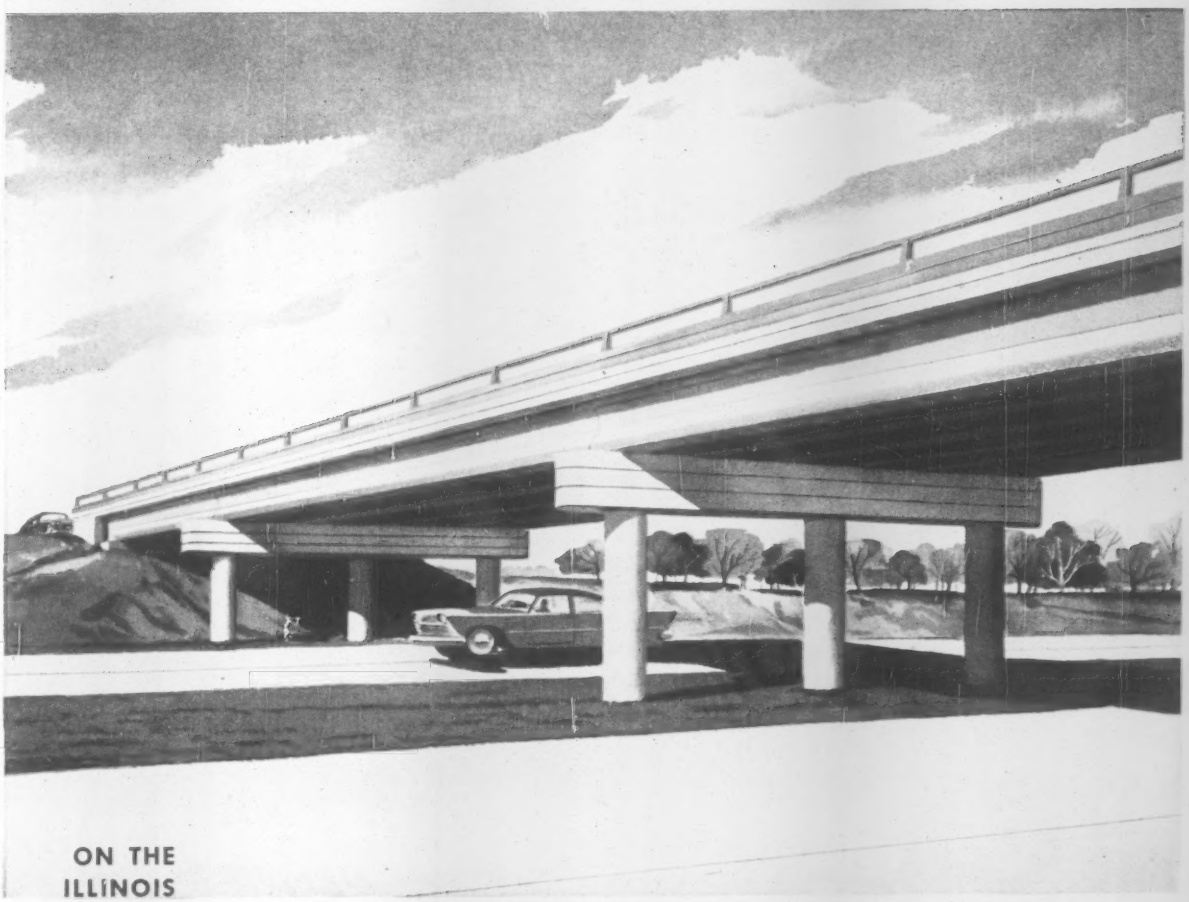
The top flange is 36 in. wide, the bottom chord 24 in. wide and the web from 5 to 24 in. thick. Prestress was applied with forty-eight ⅞ in. dia, 7 wire strands.

At midspan, the girders carry the conveyor that extends the length of the building. This conveyor and its service walkway occupy a height of 7 ft. If they were placed above or below the girders, the building would have to be higher, without increasing storage capacity. Instead, they were passed through an opening 8 ft wide by 7 ft high in the girder webs. Girder depth had to be increased only slightly for this.

The girders, as well as most of the precast elements in the building, were fabricated by Prestressed Concrete, Inc., in Lakeland, Fla. The 70 ton members were transported on a fore-and-aft drive motor carrier 20 miles to the site. Some of the other units were fabricated 40 miles away.

Lakeland Engineering Associates, Inc., Lakeland, Fla., were the consulting engineers, with John E. Anderson and the author as project engineers. Dewitt, Furnell & Spicer, St. Petersburg, Fla., erected the structure; Hubert Gore was construction superintendent. For American Cyanamid Co., George L. Lyle, Jr., was project engineer and Gene Ellison, field engineer.

WHEN AMERICA BUILDS FOR ECONOMY . . . IT BUILDS WITH CONCRETE



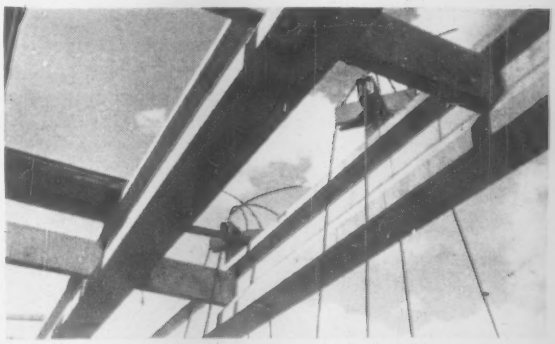
ON THE ILLINOIS TOLL HIGHWAYS . . . **precast, prestressed concrete for bridges will reduce costs $4,000,000**

A full-scale test bridge showed engineers new ways to cut costs. 218 more prestressed bridges will follow . . . at savings that make every fifth bridge free!

Engineers found big economy when they checked prestressed concrete for bridges on Illinois Toll Highways. They're cutting approximately $4,000,000 from original estimated costs—with no sacrifice of strength or durability.

This is a mass production job, the biggest yet of its kind. Designs are standardized. Prestressed stringers are being produced in casting yards to achieve top economy and uniformly high quality. All this enables contractors to meet road opening schedules with resultant financing economies.

Whether the job calls for hundreds of bridges or just a few, savings really add up with prestressed concrete. And savings are just starting! Maintenance costs will be the lowest known on any major bridge system. That's why you'll be seeing more such modern bridges as Interstate System construction moves ahead.

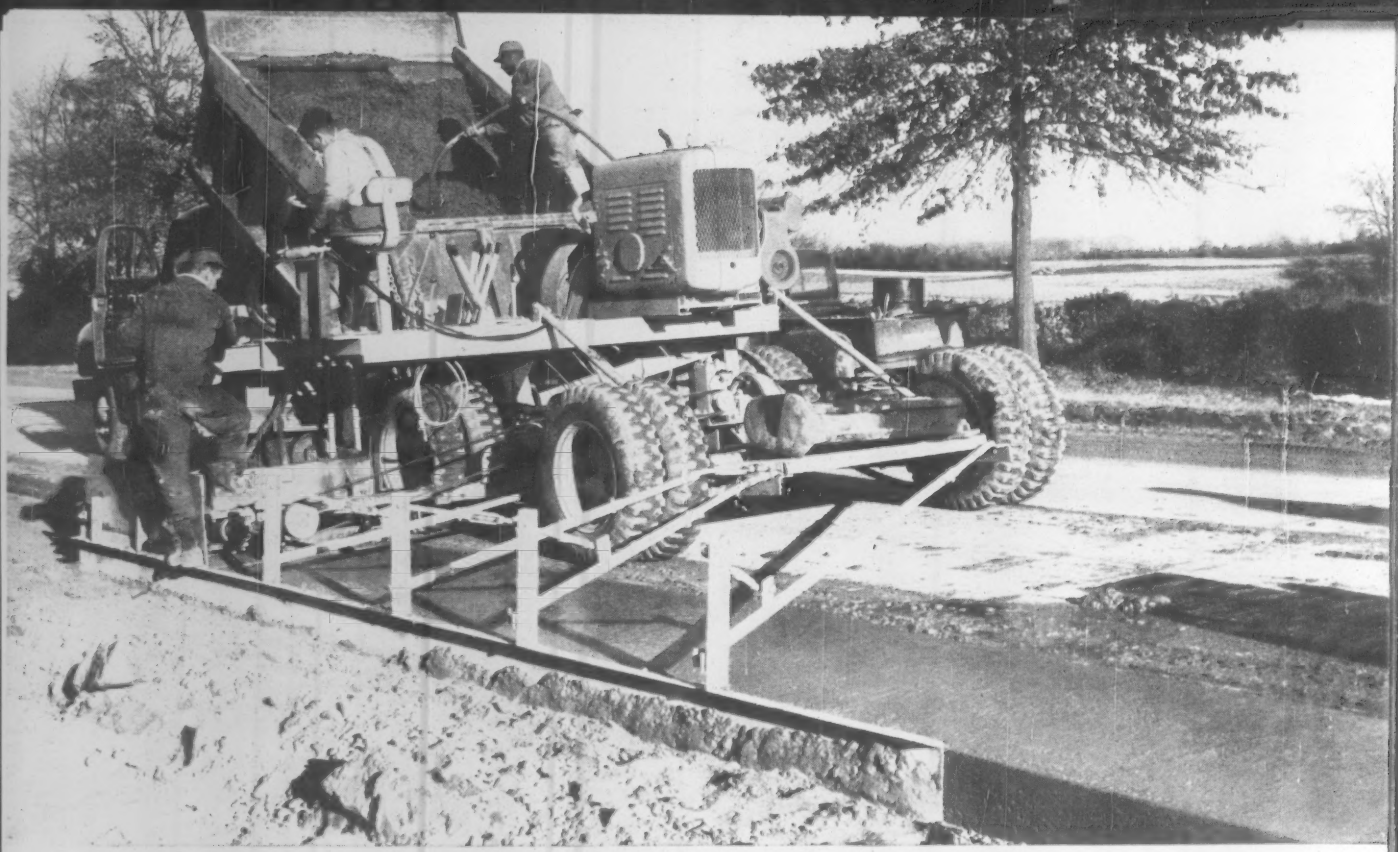


Beverly Road test bridge. Tests proved value of prestressed concrete for economical highway bridges.

FOR STRUCTURES... MODERN **concrete**

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete



Blaw-Knox slip form Widener at work on DuPont highway outside New Castle, Delaware. The contract, let by Delaware State Highway Department, calls for widening a 6¼ mile stretch of roadway from 20 to 24 feet. Bituminous Mix will be used for resurfacing.

Blaw-Knox slip form Road Widener places 72 yards of low slump concrete per hour on Delaware job

New slip form attachment eliminates setting of forms

"This Blaw-Knox Road Widener made it possible for our 14-man crew to complete this project in seven days. Without it we would have used the conventional method of widening – the setting of forms – which would have greatly increased the man-hour requirements. As it was, we finished the 6¼ mile stretch in seven days," says Webb Blevins, Job Superintendent, Wilson Contracting Company, New Castle, Delaware.

Plenty of power was demonstrated when the Blaw-Knox Road Widener pushed a 16-ton load up a considerable grade with "absolutely no loss of speed," Mr. Blevins adds. "Using the Blaw-Knox Road Widener, we placed 15 feet of 4 feet wide – 8 inch thick concrete every minute."

Engineered Blaw-Knox equipment such as the Road Widener, built for heavy duty performance is helping contractors everywhere to slash costs and build profits on construction jobs. Your Blaw-Knox distributor can give you all the details on the Model 95 Widener. If you would like a technical report on Wilson Contracting's experience, ask your Blaw-Knox distributor for a copy, or write the factory. No obligation of course.

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Construction Equipment Division

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New Lining Reduces Tunneling Costs

Three lengths of tunnel, costing some $4.5 million, are being driven for a railroad project at Potter's Bar near London, England. In driving these tunnels 696 ft, 1,152 ft and 3,642 ft respectively through clay strata, a novel lining technique is being employed which is said to reduce tunneling costs considerably.

The method is very similar to another clay tunneling technique being used in the Thames-Lee water supply project, also near London (ENR May 8, p. 62).

The unbolted, ungrouted, primary lining consists of 26½ ft dia rings—18 in. wide and 27 in. deep—made of 20 precast concrete units placed with dry joints. The concrete for the units is made from a cement expected to resist sulphuric acid attack to protect the lining from the acrid fumes emitted from the coal burning locomotives.

In the novel tunneling method a digging shield is pushed forward by rams reacting against the last lining ring placed. The next rings units are then expanded against the earth by using jacks set in slots between pairs of voussoirs at each side of the tunnel. The jacks are subsequently replaced by an extremely dry concrete, placed in two stages to avoid release of ground loads on the ring.

A 31 ft dia shield used to drive the tunnel is fitted with hydraulically operated erector arms for setting the precast units in the crown of the tunnel into position.

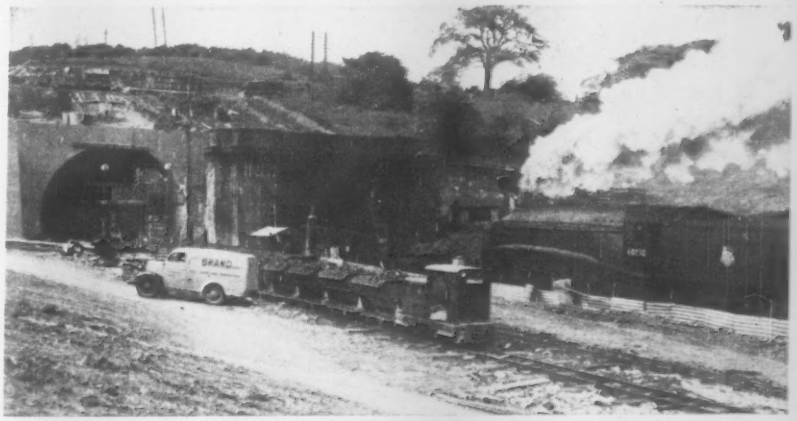
Spoil excavated from the tunnels is transferred by a conveyor belt to a hopper located behind the shield. From here the muck is hauled in a train of steel skips to a tip site.

Oversize tunnel portals permit passage of the shield. Initially, the shield reaction was taken by temporary lining rings anchored outside the tunnel.

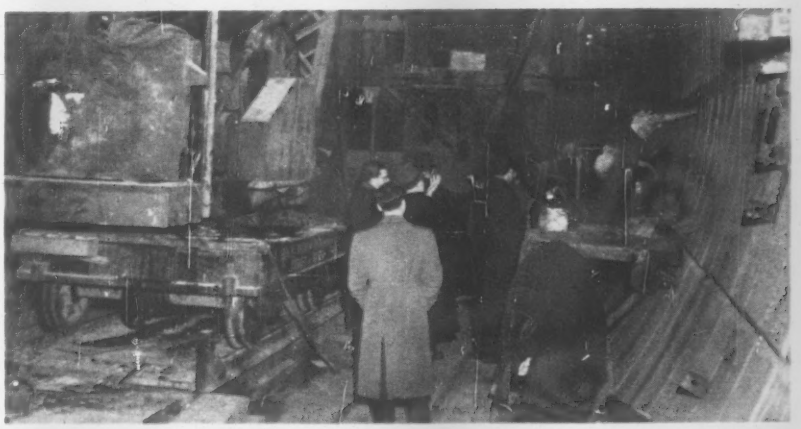
The traditional British method for railroad tunnels of this type was to use a lining of seven layers of bricks. But neither the bricks nor the miners needed to lay up such a lining are now available.

The new system is claimed to cost only 40% the price of a bolted cast-iron segment lining. The technique was develop by H. D. Morgan, senior partner of Sir William Halcrow and Partners, London, who are consulting engineers to the Eastern Region of British Railways.

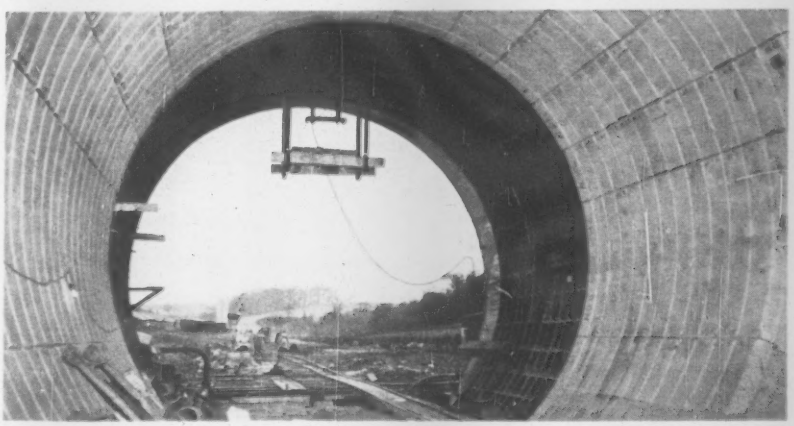
(*International continued on page 60*)



MUCKING TRAIN LEAVES PORTAL of new tunnel that is duplicating existing British Railways tunnel at Potter's Bar near London.

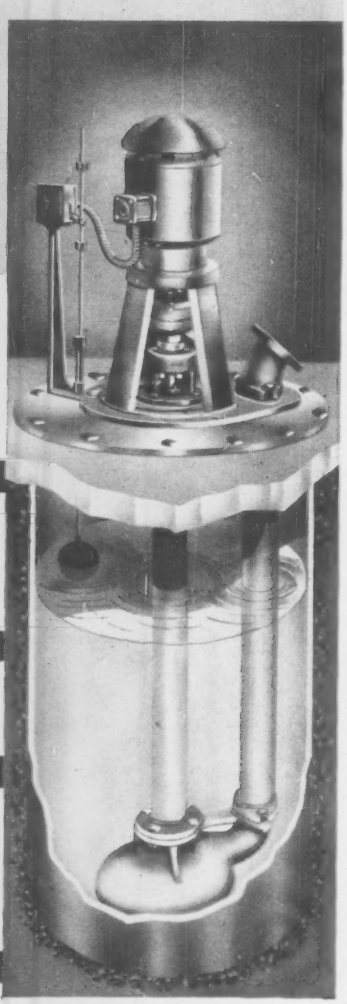


SHIELD AT TUNNEL FACE—Man at right is operating jacks set in slots between pairs of liner segments to expand them against the earth.



LINING COMPLETED—Precast concrete units are made from a "metallurgical super-sulphated cement" to resist corrosion from sulphuric acid.

SCREENLESS PUMPS for SEWAGE PUMPING DRAINAGE PUMPING with a REAL NON-CLOG IMPELLER



This HEAVY DUTY Sewage and Sump Pump with the famous NON-CLOG Impeller, effectively handles large diameter solids, rags and stringy material which are washed into the sewage pit.

RUGGEDLY BUILT

This factory assembled unit has an ample reserve of strength to meet the most severe conditions and to furnish years of trouble-free operation.

SIMPLIFIED INSTALLATION

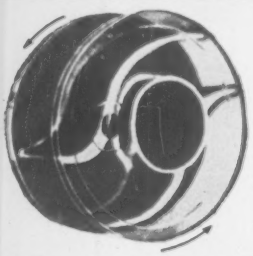
Only one piping connection required. Only one electrical connection. An ECONOMICAL installation.

CAPACITIES

A large selection of units to meet every need. Capacities to 1500 GPM; heads to 86 feet; can be supplied with 1750 RPM, 1140 RPM or 870 RPM motors; four and five inch discharges.

NON-CLOG IMPELLER

The NON-CLOG Impeller built into this Screenless Sewage Pump supplies the ideal method of pumping sewage of other unscreened liquids containing solids. This design eliminates the necessity for expensive pneumatic ejectors and various other pumps requiring screening devices.



Successfully handles the tough jobs where other pumps fail.

Pumps of this design are still operating satisfactorily after 25 years in service.

Send for Bulletin C-900 or refer to **weil** catalog in Sweet's 1958 or Domestic Engineering Catalog Directory. Weil Representatives and Weil Engineers are available to help solve your waste pumping problems.

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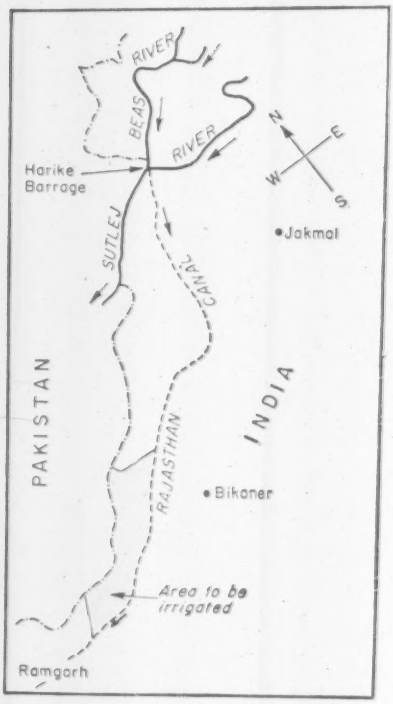

India Starts 500 Mile Irrigation Canal

Construction has started on a 500 mile canal that will carry irrigation water to some 3.5 million acres of arid land in India. The $168 million Rajasthan Canal, as it will be known, will run parallel to the Pakistan border for about 80 miles and over 300 miles will traverse desert land.

Waters of the Sutlej and Beas Rivers —tributaries of the Indus—will be diverted through this canal southwest to Ramgarh.

A labor force of 50,000 men and 20,000 donkeys have been mobilized for this earthworks project that may take 10 years to complete. According to engineers, the canal will be lined with concrete and, in some areas, masonry.

Power for Mexico

World Bank loan will finance power expansion

A $34 million World Bank loan for electric power expansion in Mexico was approved recently. The loan will finance foreign exchange costs of four major power projects that form part of the current $250 million, five year expansion program of the Federal Electricity Commission. Purpose of the projects—Mazatepec, Temaxcal, Cupa-

Three-span, continuous, reinforced concrete, deck girder bridge carrying Route 100 over U. S. 52 and State Route 218. Inver Grove Township, near St. Paul. Designer: Minnesota Division of Highways.

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here's the West's Answer to your Concrete Questions!

* **What parting compound delivers smooth concrete without leaving stains or residue that interfere with painting?**
"Thompson's Water Seal eliminated the problem of stains in our tilt-up concrete walls. Now panels are easily removed from the surface slab and painting proceeds speedily."
ASSOCIATED CONSTRUCTION AND ENGINEERING COMPANY OF CALIFORNIA, San Francisco, Calif.

* **Is there one curing, separating and form-sealing method that easily produces hard, dust-free surfaces?**
"Of all the chemicals we tested in our tilt-up work, Thompson's Water Seal proved the cheapest insurance against costly grief and painting troubles."
BAYCITIES CONSTRUCTION CO., Oakland, Calif.

* **Is it possible to prevent all moisture damage in concrete under pressure or capillary action, regardless of weather?**
"As waterproofing specialists in heavy construction work, we use Thompson's Water Seal on all concrete moisture problems with constant success and at a great saving."
STANLEY H. KOLLER CONSTRUCTION, Crockett, Calif.

THOMPSON'S (deep penetration) WATER SEAL is distributed nationwide by building supply companies and paint and hardware dealers.

For complete specifications, write for new booklet 7-B-1

Thompson's — MANUFACTURERS OF FINE PROTECTIVE CHEMICALS SINCE 1929

E. A. THOMPSON CO., INC. • MERCHANDISE MART • SAN FRANCISCO 3, CALIF.
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titzio and Guaymas—is to provide additional electric power to areas that include Mexico City, Guadalajara, Puebla and Veracruz.

The Matzatepec, a 156,000 kw hydroelectric plant on the Apulco River, will serve the Mexico City area. Located some 125 miles east of the capital, the plant will exploit hydroelectric potential of the Apulco River, one of the few remaining undeveloped river basins having an appreciable flow throughout the long dry season. A feature of the new power station will be construction of a thin arch dam 270 ft high—the first of its kind in Mexico.

On the Tonto River, southwest of Veracruz, will be the Temaxcal, a 154,000 kw hydroelectric plant. It will utilize the hydroelectric potential of a 240 ft earthfill dam that was completed in 1955 for flood protection. The project includes construction of two new transmission lines.

Designd to serve Guadalajara will be the Cupatitzio powerhouse, a 75,600 kw hydro plant on the Cupatitzio River. Work on the fourth project consists of adding a 30,000 kw generator to the existing 25,000 kw thermal plant at Guaymas. A transmission line to Hermosillo will be included.

This loan brings the total of Bank lending in Mexico to $186.3 million, of which $124.8 million has been for power development. It is estimated that these loans will have helped Mexico to add 1.3 million kw to its generating capacity since 1950, when the total installed capacity was only about 1 million kw.

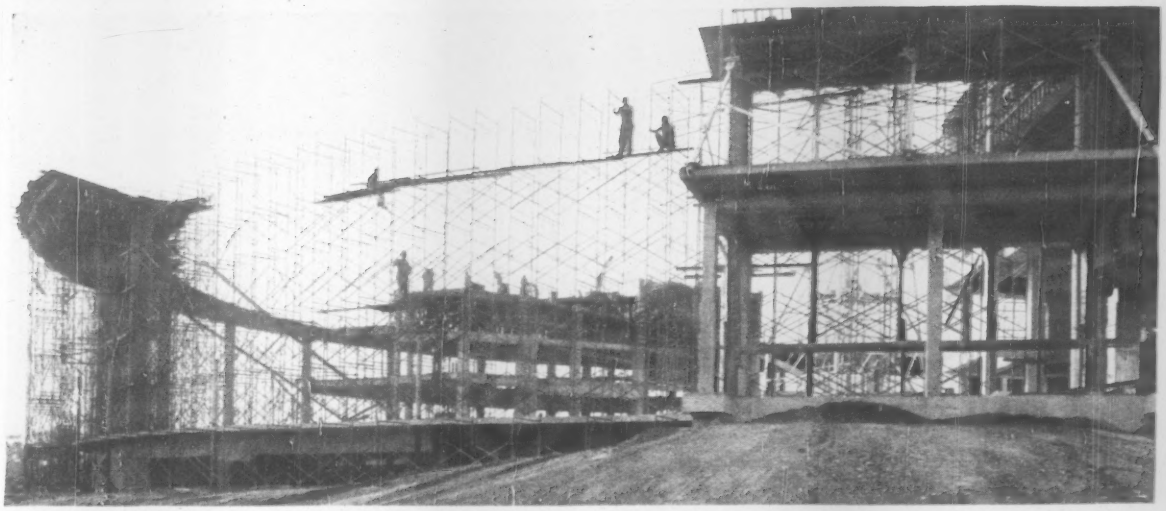
Russian Coal Pipeline Will Be 38 Miles Long

A 38 mile pipeline to handle coal in slurry form is under construction in Russia, according to the publication Soviet News.

A steel 12 in. dia pipeline laid 5 ft below the ground surface will deliver coal slurry at a pressure of about 4,500 psi some time next year. The line will operate from the Lvoc coal seams in Vallhynia to Dobrotvorskaya power station—one of the largest in the Ukraine.

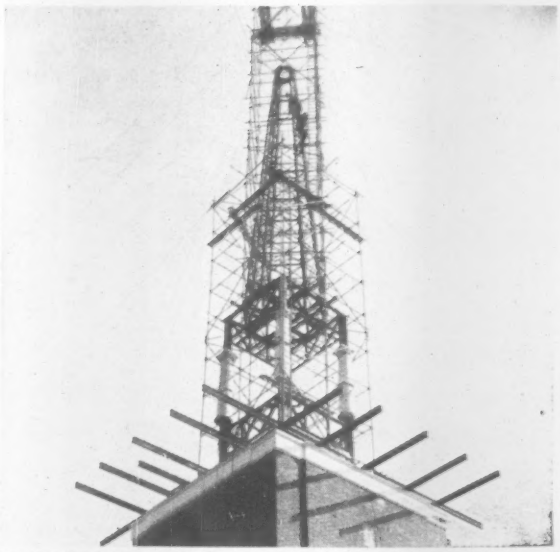
The coal is first reduced to a "maize kernel" size in a special plant at the coal pit before it is charged into the pipe. Cost of pumping coal to the power station, the Soviet source says, will be three times cheaper than shipping by rail.

The first commercial coal pipeline in the U. S. was completed between southern Ohio and Cleveland, a distance of 108 miles, in 1956 (ENR Aug. 30, 1956, p. 26).

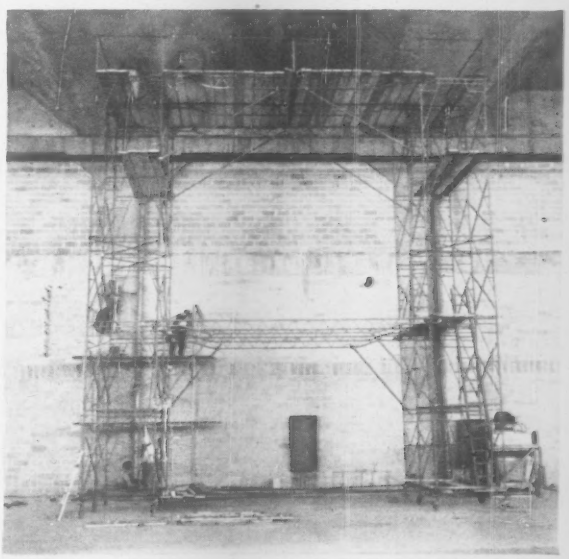


SUPPORTS 270' CONCRETE CANOPY— Handling form work and providing support for circular concrete canopy around the new Municipal Auditorium, Austin, Texas, is simplified for contractor, J. J. Stokes Construction Co., by the use of modern prefab "Trouble Saver"® Steel Shoring. 580 frames are quickly and easily assembled to provide the shoring needed. Planking laid across the tops of frames also provides working platforms. By using this shoring technique the contractor cuts forming costs all along the line. "Trouble Saver" frames are 5' wide and range in height from 3' to 10', providing broad application variations to meet any scaffolding or shoring job for efficient, lower cost construction.

Scaffolding Methods . . . by Patent Scaffolding Co.



TWO-STAGE SCAFFOLDING— Contractor, Miller Davis Co., uses 3870' of "TubeLox"® Scaffolding for building a steel roof on this 215' spire. After upper portion is done, scaffold is dismantled and re-erected on the I-beams for heavier lower work. New Goodrich Mem. Chapel, Albion, Mich. Made with only four basic parts, this scaffolding is erected rapidly to conform to any shape, size or contour. Variable tube lengths, from 6' to 20', and adjustable couplers assemble to meet job conditions.



ELECTRICIANS' ROLLING TANDEM SCAFFOLD— These two towers are each made of five sections of 6'6" "Trouble Saver" Scaffolding frames set on casters, truss-joined at two points and braced at the bottom with "TubeLox" Scaffolding. They permit the contractor, J. Livingston & Co., to roll along 33'6"-high for electrical work on hangar #12, Idlewild Airport, N. Y. C. "Trouble Saver" Scaffolding accessories permit unlimited scaffolding design and use.

To help you with your scaffolding and concrete shoring methods, PS offers a complete nation-wide engineering service available to you locally. See the Yellow Pages in your 'phone directory for the nearest Patent Scaffolding office or representative that sells and rents "Gold Medal" Scaffolds.

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THE PATENT SCAFFOLDING CO., Inc.

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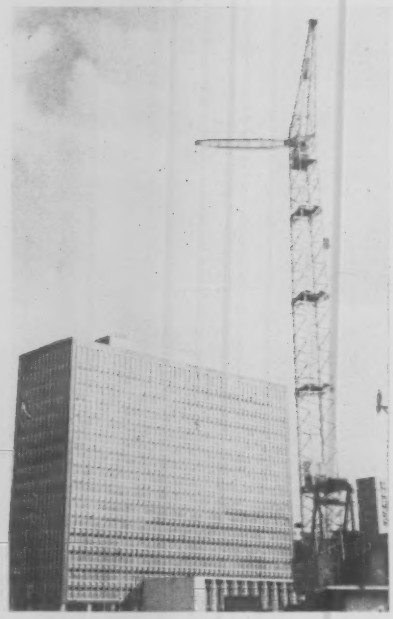


Huge Electric Crane

German make crane has long and high reach

A crane that can lift 2½ tons to heights of 323 ft while reaching out 131 ft from its center is at the Hilton Hotel job site in Pittsburgh, Pa. All electric and known as the Type 921 Universal-Peine slewing tower crane, it moves along a 190 ft section of straight track with rails on 19¾ ft centers.

The Turner Construction Co. of New York City, general contractor for the hotel, decided on the German built crane because they expect it to speed construction. It will handle all concrete forms and will place the concrete, in addition to lifting reinforcing steel rods directly to the floor forms.

A new concept is being brought to U. S. building construction with the introduction of this crane, in that it can reach completely across construction jobs to handle materials at the far side, avoiding both multiple cranes and concrete buggying.

One of the great advantages of the crane is the visibility had by the operator at all times. Operation can be carried on from either the crane base or two alternate tower control stations, or anywhere on the building or construction side by remote control. This means that, if needed, one operator can handle the lifting from the ground, while another operator can handle unloading at the work site. The need for crane signals is thus completely eliminated. And automatic control can be switched easily from one operator to another by a light signal at the control points.

The crane operator at the Hilton Hotel site likes the machine's operations. He learned them in less than a week. He can lift, lower, slew, travel, and luff simultaneously.

The model erecting the 23 story Pittsburgh hotel, has an unballasted weight of 60½ tons, with capacity for 48 tons of gravel ballast that can be jettisoned before moving to another job site.

Says Paul Starr, construction superintendent at the job: "I like the idea of avoiding the hoist towers and the Chicago boom that we generally use in tall buildings. With this rig we can do away with all concrete buggying operations, and we expect to save some 30 to 40% in materials handling and labor costs as a result."

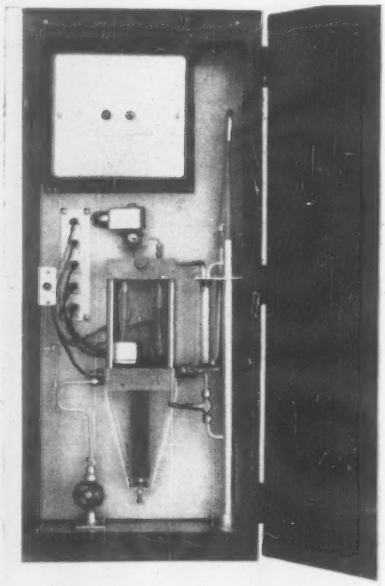
The crane has definite positive acting safety features. Any of five overload devices will activate and switch off the equipment automatically whenever too heavy a load is lifted, too great a gib angle is reached, or too much speed is used—among other factors.

B. W. Carbeau, Universal's vice president who has been mainly responsible for bringing the crane to America, says: "We plan to bring additional units into this country within the next two months. The rigs either may be bought at around $95,000 or may be rented.

"Once the crane is set up for its first job, it need never be dismantled except for normal inspection and maintenance. Even the cables are left in place—tremendous time-saver on successive jobs. Finally, the crane both erects and returns to road traveling position under its own power—a unique feature."

Mr. Carbeau adds, "While the crane is competitive in cost with the largest American cranes manufactured, for the money our equipment has it all over existing American rigs. Although it hasn't been fully tested in the U. S., its utility has already been proved on building jobs in other parts of the world. With a skyscraper attachment, this crane can reach as high as 33 stories, with a reduction, of course, in crane capacity.

"But the main advantage is its combination of electrical operation with durability, that gives it far greater sensitivity than any corresponding diesel-operated equipment." Universal Mfg. Co., Zelienople, Pa.



Oxygen Analyzer

Trace amounts in water recorded continuously

A new dissolved oxygen analyzer which automatically and continuously measures dissolved oxygen in high purity water can detect minute traces as low as one part per billion.

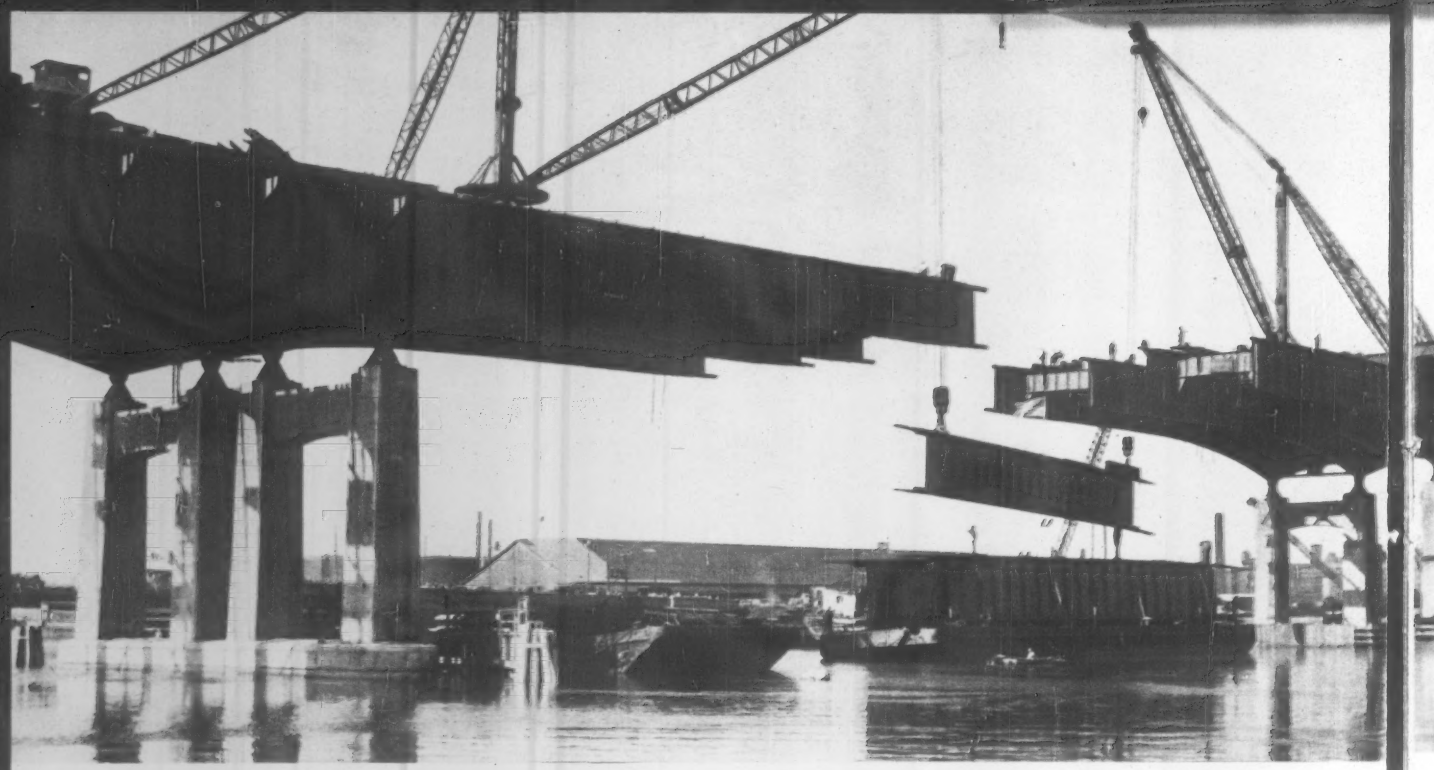
It offers means for monitoring oxygen removal efficiency which is essential to minimize corrosion in steam generation equipment. The instrument is said to be superior in accuracy, speed, and convenience to conventional laboratory chemical methods.

The Model 70 Dissolved Oxygen Analyzer, as it is called, operates on 115 v, 50-60 cycles. Ranges include 0-25, 0-50, 0-250 parts per billion plus a tenfold extended range with the upper portion of the scale compressed for leak tracing during boiler start-up. Signal output is 0-5 millivolts which can be fed to standard potentiometric recorders.

Accessories include a multi-sample system for monitoring up to four streams with one instrument; a calibrator for precise, direct instrument calibration; and temperature and pressure regulators, if required. Checking deaerator efficiency and monitoring water streams in nuclear power plants are some applications for the analyzer. Beckman/Process Instruments Div., 2500 Fullerton Rd., Calif.

(New Products continued on page 69)

THE CONNECTICUT Turnpike
BETHLEHEM STEEL



NEARLY A QUARTER OF A MILLION TONS OF STEEL HELPED BUILD 129 MILES OF TURNPIKE

Some 8,000,000 vehicles are expected to use the Connecticut Turnpike this year. Officially opened on January 2, it is the state's largest public works project to date, costing almost $464 million.

Slashing travel time between New York and the Rhode Island border, this new coastal expressway provides 129 miles of modern divided highway, with up to eight lanes in the busier sections. From start to finish, Connecticut State highway engineers kept safety foremost in their planning and design. Free of cross traffic for its entire length, traffic flows on and off through ninety interchange points. There are 198 spans to carry the expressway over railroads, streets, rivers and highways, and 76 other structures which carry roads over the Turnpike.

Everywhere along the Turnpike are evidences of steel's part in making the expressway a reality. Some of these are major structures, like the Quinnipiac River Bridge, longest continuous plate-girder span in the United States. Some 11,520 tons of structural steel went into this bridge, fabricated and erected by Bethlehem.

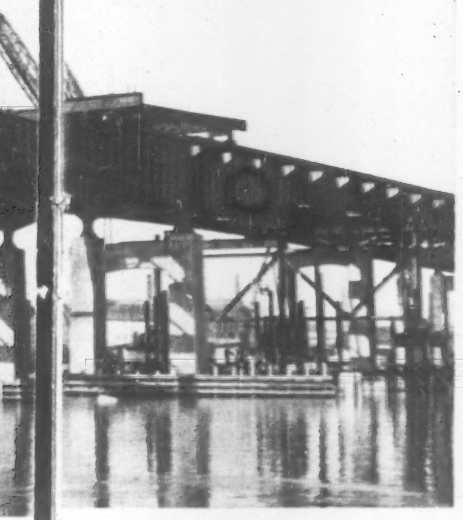
But steel is also present in less spectacular ways. Over 2½ million square yards of pavement reinforcement were used—some 8,000 tons—to strengthen the concrete slabs. Steel guard rail, both cable and beam, has a lineal length of some two million feet. Right-of-way steel fence stretches along 83 miles of the highway. Over 130,000 ft of steel bridge railing was used.

Steel was used in such varying applications as maintenance garages, restaurants, signs and signposts, culvert and drainage systems, toll booths and weight scales.

Bethlehem supplied a large part of all the steel used in the Connecticut Turnpike. Bethlehem supplies a long list of steel products for the construction industry (see page 4). And manufacturers of other types of highway products and construction equipment use many forms of steel made by Bethlehem.

Stretching from New York to Rhode Island, the Connecticut Turnpike is eight lanes wide in the busier sections. There is an average of one interchange for each 1.4 miles.

The Quinnipiac River Bridge at New Haven is one of the major structures on the Turnpike. The bridge's 387-ft-long center span is the longest continuous plate-girder span in the United States. Bethlehem fabricated and erected 11,520 tons of steel for the bridge, and supplied steel for many other of the 274 bridges and viaducts.



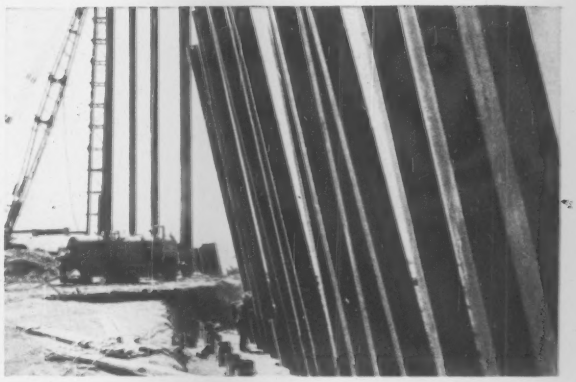
TURNPIKE FACTS AT A GLANCE

Conceived and operated by Connecticut State Highway Department
Towns and cities served—28 • Length—128.66 miles
Bridges and viaducts—274 • Total distance lighted—53 miles
Interchanges—90 • Dual service stations—7 • Restaurants—8
Toll stations—8 • Shoulders—10 ft wide • Lanes—12 ft wide

CONSTRUCTION FACTS AT A GLANCE

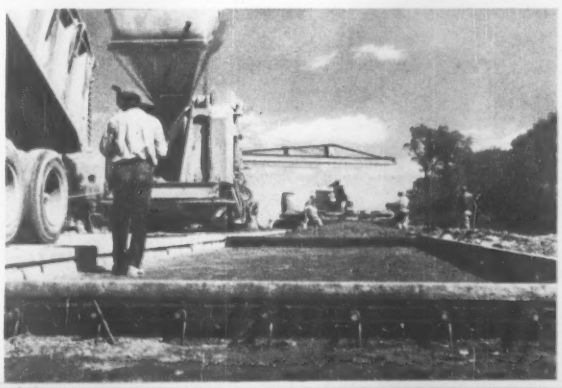
Portland cement used—2,309,500 bbls
Concrete for structures—722,600 cu yds
Concrete for pavement—684,900 cu yds
Rock excavated—9,182,000 cu yds
Earth excavated—16,744,300 cu yds
Steel required:
Fabricated structural—122,700 tons • Piling—46,000 tons
Pavement reinforcement—2,652,000 sq yds
Reinforcing bars—45,700 tons • Guard rail—2,151,300 ft
Fence—166 miles • Expansion and contraction joints—561,400 ft

Turnpike construction required the removal of over 9 million cu yds of rock. Bethlehem drill steel was widely used in drilling blast holes. And Bethlehem wire rope is the muscle on power shovels and pile-drivers.

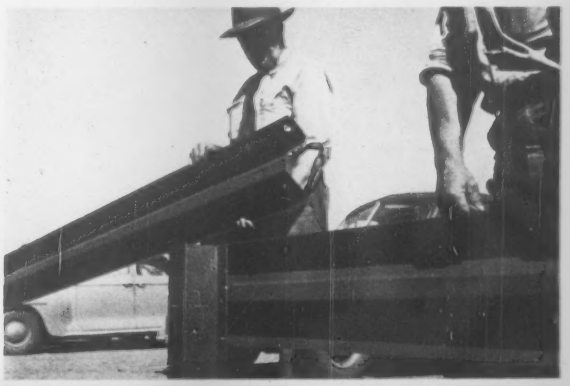


Nearly 50,000 tons of Bethlehem piling were used in preparing foundations for the Turnpike's major structures. In addition to H-piles, sheet-piling cofferdams facilitated construction of water piers for the bridges.

Paving of the Turnpike called for thousands of tons of Bethlehem concrete reinforcing bars, dowel units, bar mats, and hook-bolt assemblies. Steel pipe, sheets, and culverts were used in drainage systems.



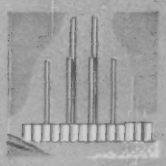
Millions of feet of steel guard rail, both the cable and solid-beam types, protect motorists and truckers along the Turnpike. And over 130,000 ft of steel railing is used on bridges.



There are many and varied ways in which steel and steel products were used after the roadway was completed. Obvious applications are the toll booths, restaurants, garages, direction signs, weight scales, snow removal equipment and many others.

A COMPLETE LINE OF CONSTRUCTION STEEL

PILING



STRUCTURAL SHAPES

FABRICATED STEEL

ROAD STEELS

WIRE ROPE

HOLLOW DRILL STEEL

Bethlehem furnishes a complete line of products for the construction industry:

Abrasion-resisting steel
Bar mats and welded fabric
Barbed wire
Blast furnace slag and commercial stone
Bridge floor
Bridge rail
Cables for suspension bridges
Center strip and keyway
Centering, solid steel over joints
Culvert sheets, galvanized
Curb facing
Digging bars
Drill steel, hollow and solid
Dowels, hook-bolt
Dowel units
Fabricated steel bridges and buildings
Fasteners of all types
Fence and posts
Form stakes
Form wire
Guard rail—beam and cable
Hardware, timber bridge
High-strength bolts
Joists, open-web, shortspan and longspan
Nails
Paving steels
Piling, steel sheet and H-piles
Pipe, large-diameter welded
Pipe piles
Pipe
Plate
Posts, steel fence
Posts, steel guard rail
Reinforcing bar accessories
Reinforcing bars, plain and fabricated
Rock bolts
Roofing and siding, steel
Structural steel shapes
Tool steel
Tunnel-liner plates
Tunnel ribs
Tunnel segments
Wire rope and slings
Yieldable arches for tunnel roof support

Descriptive literature is available on most of these Bethlehem products. And our catalog, "Steel for Highways," provides details on many of the steel products which are used in highway construction.

If you'd like more information, just fill out the coupon below.

You may want to see the new Bethlehem motion picture "Steel in Concrete," a technical study of reinforcing steel. This and other Bethlehem films are distributed through Modern Talking Picture Service, Inc. with offices in most major cities.

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701 E. Third Street
Bethlehem, Pa.

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BETHLEHEM STEEL

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BETHLEHEM STEEL

Improved Shutter Screen Is Made for Gravel Wells

An improved stainless steel shutter screen for gravel walled water wells has been introduced by Layne & Bowler.

The louvers on the cylindrical screen tube are of a size that, according to the manufacturer, overcomes the disadvantages of mesh screens with too small or too large openings.

The openings are die-punched into the walls of the cylinder incorporating the cut portion as a part of the finished screen. This cut portion, the louver, is expanded and extended—upward and outward—forming an arch over the opening. This affords protection to the openings during graveling and development of the well.

Shutter screens are made in 5 ft lengths that can be assembled and delivered in 10, 15 and 20 ft field lengths. Diameters range from 6 to 48 in. only, but larger sizes will be made on special order. LAYNE & BOWLER, INC., MEMPHIS, TENN.

Vibrator Speeds Unloading Of Dry Cement and Sand

An electric vibrator to speed unloading of dry cement, sand and other powdered or granular materials utilizes a rotary eccentric in setting up the concentrated vibration.

The "Vibromat" can be attached to the unloading hopper of a railroad freight car or other equipment. When used on concrete forms the vibrator causes the wet concrete to settle into the form without hand rodding or pounding, it is claimed.

The "Vibromat" is available with a rigid or a swinging base and with a ½ hp, ¾ hp or 1 hp motor. ENGINEERED EQUIPMENT, INC., WATERLOO, IOWA.

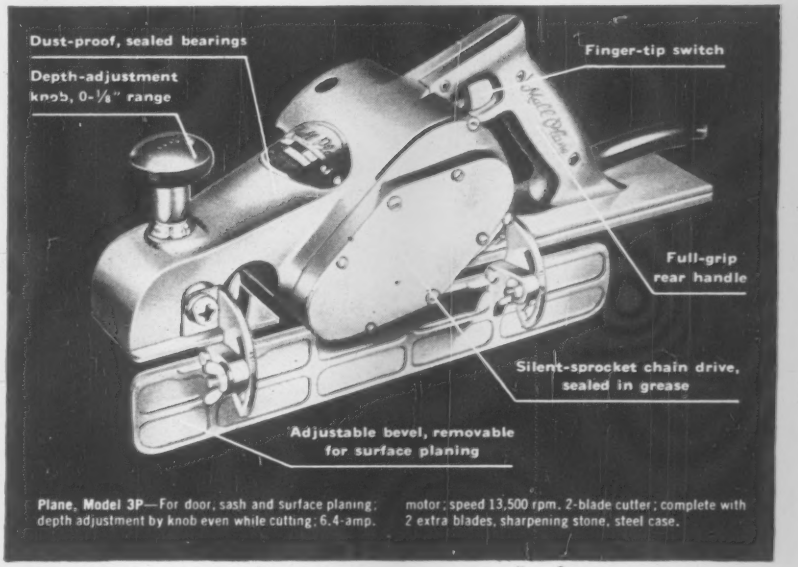
Loads Taken on Subframe Of New Hydraulic Loader

The manufacturer calls its new 2¼ yd bucket capacity loader a completely integrated unit, with the loader matched to the full capabilities of the 110 hp tractor. The loader is rigidly mounted so that loads are taken directly on the subframe of the OC-156.

Length of track on ground is 87⅛ in., with 2,788 sq in. contact area to give greater stability. The hydraulic pump is located under the radiator and is engine mounted; there are no hose connections to come loose. Deep full-length steel guards protect the six lower track wheels. THE OLIVER CORP., INDUSTRIAL DIV., 19300 EUCLID AVE., CLEVELAND 17, OHIO.

(New Products continued on page 70)

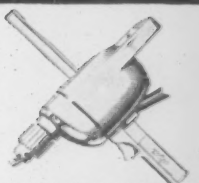
POWER to boost job efficiency with REMINGTON tools


Dust-proof, sealed bearings
Depth-adjustment knob, 0-⅛" range
Finger-tip switch
Full-grip rear handle
Silent-sprocket chain drive, sealed in grease
Adjustable bevel, removable for surface planing

Plane, Model 3P—For door, sash and surface planing; depth adjustment by knob even while cutting; 6.4-amp. motor; speed 13,500 rpm. 2-blade cutter; complete with 2 extra blades, sharpening stone, steel case.

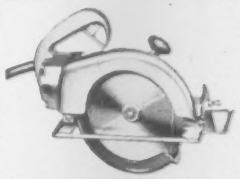
Sander, Model 57S—7" discs, quick-change spindle lock; free speed 4,500 rpm.; heavy-duty ball bearings; 10 amps., 115 or 230 v.; wt. 14 lbs.

Polisher, Model 57P — 9" bonnet; free speed 1,400 rpm; load speed 840 rpm; 7.0 amps., 115 or 230 v.; heavy-duty ball bearings; wt. 19 lbs.

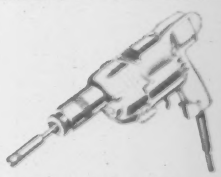


Electric Drill, Model 125—½" capacity, geared key chuck; 5-amp. motor; removable auxiliary handle; ball and needle bearings; wt. 8½ lbs.

Powerful, rugged, easy to handle—Remington Power Tools help you boost output and ease the tough jobs. They're precision-built for long service and minimum maintenance. Your Remington distributor stocks and services the industry's widest selection of power tools and parts.



Electric Saw, Model 86—8½" blade; cuts full 2⅞"; bevel cuts to 2⅝"; powerful 15 amp. motor; complete with blade, wrench and carrying case.



Screwdriver, Model 143SR—Reversible; capacity: No. 10 wood screws; adjustable clutch for pre-set tension; ball bearings; locking trigger switch.

CHOOSE THE POWER MOST EFFICIENT FOR YOU. REMINGTON POWER TOOLS ARE AVAILABLE IN **AIR • ELECTRIC • GASOLINE-DRIVEN MODELS**

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Specifications subject to change without notice.

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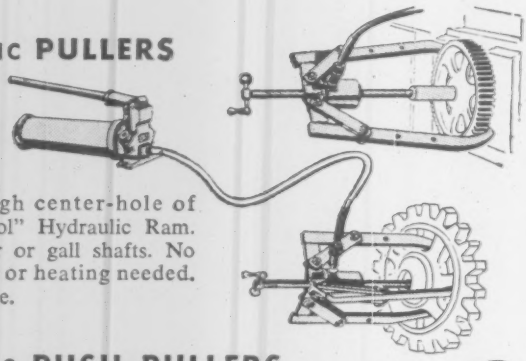
new SIMPLEX pullers

For removing and installing gears, pulleys, wheels, bearings, bearing sprockets and cups, axles and similar work. These new Simplex Hydraulic Pullers, Push-Pullers and Attachments are available separately or complete with "RE-MO-TROL" rams and pumps in 20 and 30-ton capacities.

NEW HYDRAULIC PULLERS

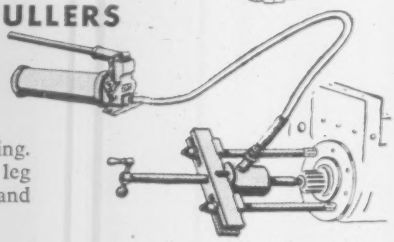
Double-Grip
Triple-Grip



Direct pull through center-hole of Simplex "Re-Mo-Trol" Hydraulic Ram. Cannot slip, wander or gall shafts. No hammering, prying or heating needed. Fast, safe, easy-to-use.

NEW HYDRAULIC PUSH-PULLERS

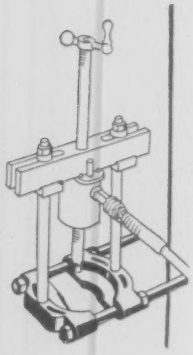
Hydraulic power supplied by "Re-Mo-Trol" Ram. Gives versatile application for direct-drive, torque-free pull through center-hole, easily, safely. No hammering, prying or heating. Reach varied by attaching 7 different leg lengths. Male and female adaptors and plugs provided.



New **ATTACHMENTS** used with new **PUSH-PULLERS**

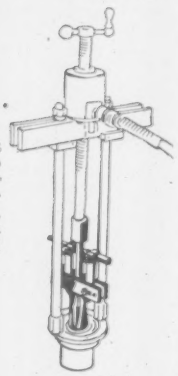
Bearing Puller . . .

Small, compact, thin-legged design permits use in restricted areas where Double-Grip and Triple-Grip Pullers will not fit. Ideal for arbor press use.



Bearing Cup Puller . . .

Strong curved fingers prevent damage to parts. Simplifies removal of bearing cups, oil-seals, bushings, sleeves, etc. especially from blind holes in cramped quarters.



WORLD'S LARGEST MECHANICAL AND HYDRAULIC JACKS MFGRS. OF INDUSTRIAL

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JENNY
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SEE YOUR DISTRIBUTOR, or write for details

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2535 Gardner Rd.
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Herringbone Wire Rope Eliminates Two Sets of Stock

Herringbone is a new wire rope construction that is said to combine the flexibility and abrasion-resistance of Lang lay rope with the structural stability of regular lay. According to manufacturer spokesmen, the new rope will eliminate the stocking of two different types of rope.

The herringbone rope is fabricated of two pairs of Lang lay strands separated by two strands of regular lay. Thus the tough and relatively large outer wires withstand friction from contact with sheaves and drums while the smaller and flexible inner strands enable the rope to sustain bending stresses. JOHN A. ROEBLING'S SONS CORP., TRENTON, N. J..

Backhoe Links to Tractor, And Gives Added Swing Arc

A backhoe designed especially for crawler tractors has a swing of 200 deg. And with the fuller swing comes such features as new type rotary swing cylinders and quick detachable mountings. The manufacturers say it digs deeper now—to a maximum of 12½ ft with an 8½ ft loading height.

The unit comes with 12 different bucket sizes plus four sizes of moles paw buckets. A pipe pusher attachment rounds out the accessories. HENRY MANUFACTURING CO., INC., P.O. BOX 521, TOPEKA, KAN.

AIRLINE HIGHWAY INTERCHANGE handles traffic from Airline Highway, a principal east-west route, and Causeway Blvd., the only direct north-south route in East Jefferson Parish (New Orleans). Built for the Greater New Orleans Expressway Commission. Engineering and design by Palmer and Baker Engineers, Inc., New Orleans. Louisiana Paving Co., Kenner, La., contractor.

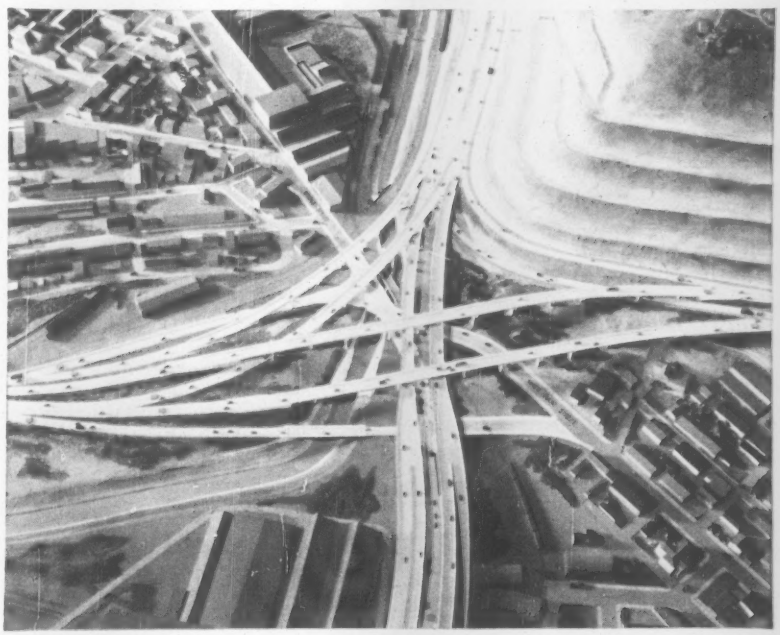
Go-Signs to Civic Progress — two unusual interchanges

NEW ORLEANS and Pittsburgh had the same problem. Converging highways caused progress-choking traffic jams. Each city found the solution in impressive interchanges. Two of their structures present an interesting contrast in design.

The New Orleans Airline Highway Interchange is a compact, symmetrical 4-level design, dominated by a unique elevated traffic circle. It consists of a 6-lane underpass, service roads at grade, intermediate level turning circle with 8 approach ramps, and a 4-lane overpass.

On the other hand, Pittsburgh's Etna Interchange, now under construction, is a seeming maze of roads and ramps. Several miles of roadways will crisscross at multiple levels. Construction problems are unusually tough. Steep hills must be benched out, railroad tracks relocated and even a stream bed shifted.

Modern traffic requires spectacular highway structures like these, and modern truck mixers to pour them. These highly mobile concrete plants can operate where other equipment can not be used. Their mixing efficiency is guaranteed by Rating Plate, certifying their correct design, capacity and mixing speed and accuracy of water control.



ETNA INTERCHANGE (shown in a model) will pick up traffic from downtown Pittsburgh, a main local artery and two important highway routes. Leonard J. Curran, engineer in charge for Pennsylvania Department of Highways. Richardson, Gordon and Assoc., Pittsburgh, consulting engineers; Latrobe Road Construction Co., Latrobe, Pa., contractor.

6½ CUBIC YARD
MIXER
MAXIMUM CAPACITY
CERTIFIED BY THE TRUCK MIXER MANUFACTURERS BUREAU TO COMPLY WITH ITS STANDARDS FOR TRUCK MIXERS AND AGITATORS AS APPROVED BY THE N.R.M.C.A.
8½ CUBIC YARD AGITATOR
UNLESS RATED LOWER ON THE MANUFACTURER'S DATA PLATE
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You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards maintained for your protection by the Truck Mixer Manufacturers Bureau.

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THE T. L. SMITH COMPANY
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WILLARD CONCRETE MACHINERY CO., LTD.
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WORTHINGTON CORPORATION
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ANOTHER PROBLEM SOLVED BY SPENCER, WHITE & PRENTIS

SHEETING, BRACING, UNDERPINNING used for foundation of one of Jacksonville's largest hotels

1. SOLDIER BEAMS, HORIZONTAL SHEETING AND BRACING
2. EXISTING BUILDING UNDERPINNED

Project: Robert Meyer Hotel, Jacksonville, Fla.
Architect: William B. Tabler, New York City
Engineers: Seelye, Stevenson, Value & Knecht, New York City
General Contractor: Daniel Construction Co., Jacksonville, Fla.

The site of this 19-story, half-block-square hotel in Jacksonville was nearly all sand. The foundation required several kinds of specialized work, which were awarded to Spencer, White & Prentis.

Soldier beams, horizontal sheeting and bracing (see photo) were used on 3 sides. This type of support made it unnecessary to cope with heavy hydrostatic pressure, since the openings between the sheeting permitted drainage during Florida's tropical storms.

Pit underpinning secured the J. C. Penney building, at right.

Whatever your foundation problem and wherever your job is located — whether South, North, East or West — Spencer, White & Prentis is equipped to give complete dependable service.

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Publications

Soil-cement stabilization — A 36 page booklet, titled "The ABC's of Soil-Cement Stabilization," details the uses of soil-cement, how it is processed, and the best operational procedures of soil-cement stabilization as related to street, highway, parking lot and airport construction. PETTIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL.

Vinyl paint film—A 15 minute presentation about the advantages of vinyl-based paints now is available in a 16 mm sound and color motion picture called "The Modern Touch." RESIN DIVISION, NATIONAL STARCH PRODUCTS, INC., 750 THIRD AVE., NEW YORK, N. Y.

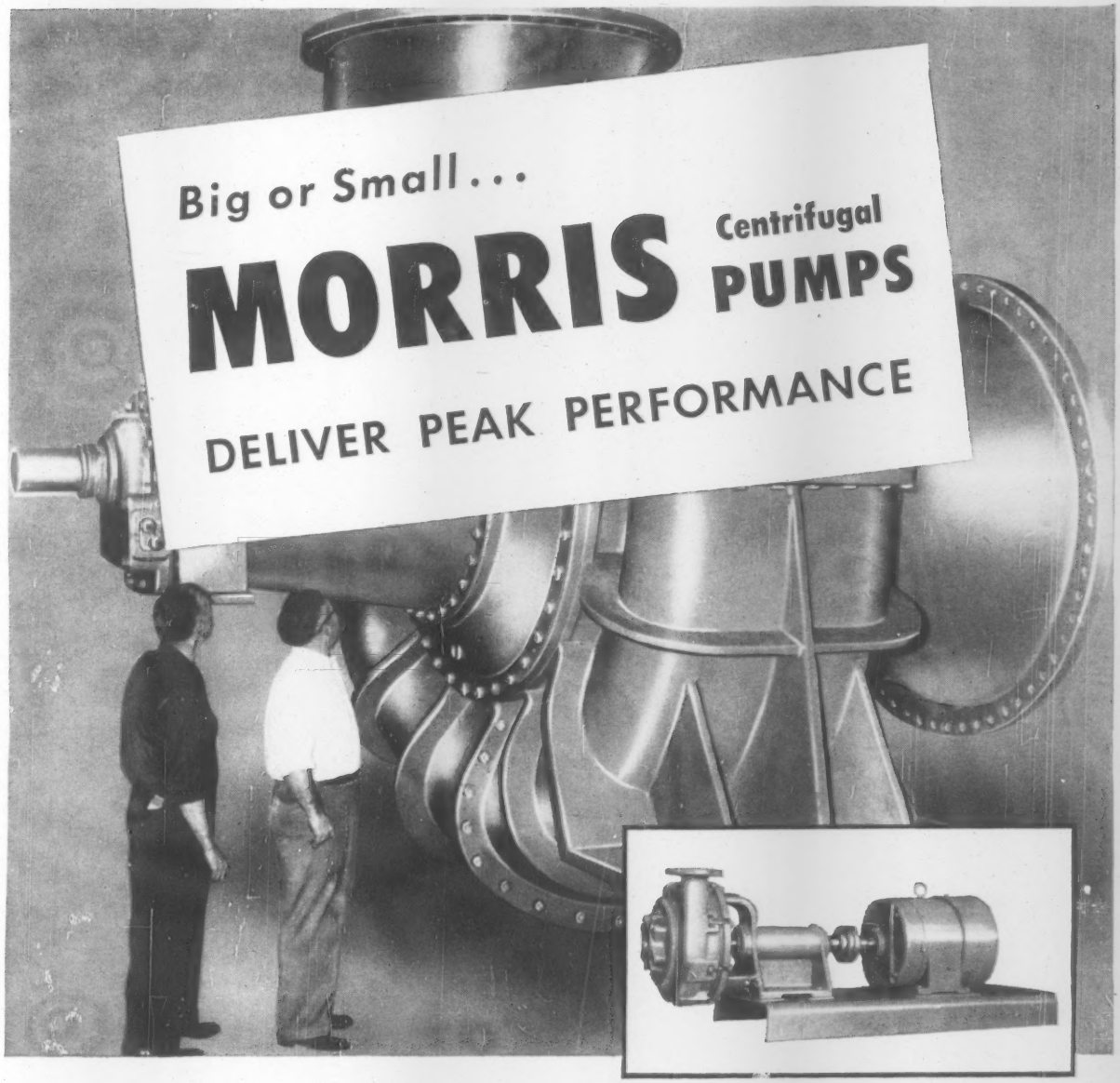
Technical plastics—A 28 page brochure describes industrial thermosetting laminating plastics, including properties, characteristics and government specifications. SYNTHANE CORP., OAKS, PA.

Immersible motor—A four-page bulletin, No. 2300, illustrates applications and engineering features of the new "Immersible Motor," designed for submerged operation. THE LOUIS ALLIS CO., 427 E. STEWART ST., MILWAUKEE 1, WIS.

Welded wire fabric—A 44 page edition of a design manual on the use of welded wire fabric in reinforced concrete building construction has been revised to correspond with the latest edition of the ACI "Building Code Requirements for Reinforced Concrete" and with the ASTM. "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement". WIRE REINFORCEMENT INSTITUTE, DEPT. 50, 1049 NATIONAL PRESS BUILDING, WASHINGTON 4, D. C.

Brazing manual—A 24 page self-instruction booklet on metals joinery, titled "Brazing Manual," contains illustrated data for brazing shapes, sheet, castings, tubing and assemblies of copper, brass, steel, aluminum and cast iron. ALL-STATE WELDING ALLOYS CO., INC., 249-55 FERRIS AVE., WHITE PLAINS, N. Y.

Metal lath—Technical Bulletin No. 12-1 and 12-2 for suspended metal-lath and plaster ceilings include the size and spacing of all metal components for a metal-lath suspended ceiling; maximum limitations of main runners for spans up to 7 ft and a table on hangers covering the minimum requirements for maximum areas. METAL LATH MANUFACTURERS ASSOCIATION, ENGINEERS BUILDING, CLEVELAND 14, OHIO.



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Whether you are pumping sand and gravel, fine chemical slurries or clear water, there is a Morris Pump designed to do the job more dependably and more economically. With its "built in" margin of safety, you are assured of continued high efficiency in any pumping operation, even under adverse conditions.

Modern hydraulic design and engineering result in trouble-free pumping with a minimum of down time. Construction is simple and rugged. Parts subject to wear can be furnished of special alloys. Easily accessible impellers are carefully designed to maintain high efficiency over long periods of time and engineered to avoid excessive turbulence.

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PUMPS

MAJOR CONSTRUCTION . . . for one of America's major appliance manufacturers,

by

Traylor Bros., Inc.

General Contractors, Evansville, Ind.

with structural steel fabricated by

INTERNATIONAL STEEL COMPANY!

Among the other Traylor Bros., Inc. construction projects on which International Steel has participated are:

Beeler Warehouses Nos. 1, 2, 3 and 4 — Evansville, Indiana

Shopper's Fair Department Stores — Evansville and Indianapolis, Indiana

Palm Beach Distribution Warehouse — Erlanger, Kentucky

Increasing sales of appliances made it necessary for Whirlpool Corporation to expand manufacturing facilities in Evansville, Indiana, fast to meet the growing demand. Traylor Bros., Inc. was selected as the contractor for this large construction project. They in turn called on International Steel for fabrication of structural steel for the new facility . . . because they knew from experience gained on other projects that International Service would keep them on schedule.

More and more of the nation's builders are depending on International because of this proved performance . . . a fully integrated service of special structural steel engineering, fabrication and erection . . . developed to match schedule needs.

International Service is available for special structural steel engineering, fabrication and erection on your construction project . . . wherever it may be. Write for data on facilities.

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1455 Edgar Street • Evansville 7, Indiana

Measure of Damages

Contract price less cost used in contract breach

Where damages have resulted from breach of contract and evidence is produced to afford some basis for estimating the amount of damage, a recovery is allowed.

A New Jersey court, in a case that arose under the following circumstances, said the purpose is to allow the injured party to recover the profits he has lost:

A manufacturer of machinery brought an action to recover damages against the contractee who prevented the manufacturer from completing the contract. The contractee interposed the defense that the alleged damages in question were uncertain and this fact should preclude a recovery.

This question seems to come up often and the rule of law is that if there is uncertainty that any damage has occurred no recovery can be had; but where it is definitely shown that damage has occurred, a recovery is allowed. This situation usually arises where a contractor is prevented from performing the contract, in which case, the damages can only be proven by expert testimony showing what it would have cost to perform the job, and the difference between this and the contract price represents the amount of loss that the contractor sustained. The manufacturer was granted a recovery which was affirmed on appeal.[1]

The appellate court stated: "In discussing this question, it is necessary to distinguish between uncertainty as to the fact of damage and uncertainty as to its amount. See 5 Williston, Contracts (rev. ed. 1937), Section 1346, p. 3778; 5 Corbin, Contracts (1951), Section 1022, p. 119; Restatement, Contracts, Section 331 (1), p. 515, comment (a) (1932); Annotation, 'Uncertainty as to Damages,' 78 A.L.R. 858 (1932). The facts in the instant case clearly establish that damage did result; the amount of the loss may be calculated with reasonable certainty, though not precisely. Where it is certain that damage has resulted and the evidence affords a basis for estimating the damage with some degree of certainty, recovery is allowed."

The court further said: "The fundamental concept concerning the measure of damages in a case of this kind, where the plaintiff (contractor) is a supplier, producer or contractor who has been prevented by the defendant (contractee) from completing his contract, is that the plaintiff is entitled to the profit that would have been realized if performance had been completed. This is generally measured by the difference between the contract price and the cost of performance or production.

The contractee also claimed that an allowance should have been made to it because the contractor was relieved of care, trouble, risk and responsibility in connection with the completion of the contract. The court pointed out that while there are cases that hold that an allowance should be made to offset the amount of damages claimed, and refers to many of such cases, research on its part failed to find any such case in New Jersey where the action was tried.

(1) Apex Metal Stamping Co. v. Alexander & Sawyer, Inc., 138 A. 2d 568, Supreme Court of New Jersey, Appellate Division, Jan. 22, 1958.

Rights of Sub's Supplier Under Law of Suretyship

A federal court has indicated that a subcontractor's supplier should sue the general contractor and its surety for the unpaid purchase price of materials furnished rather than the sub's surety.

On March 4, 1949, the United States entered into a contract with E. F. Grandy, Inc., for alteration work in a building owned by the government. On the same date, Grandy entered into a contract with V. L. Murphy for part of the work. Grandy, as required by the Miller Act, furnished the United States with two bonds, one to secure the performance of the work and the other a payment bond for the protection of all persons supplying labor and material in the prosecution of the work provided for in the prime contract.

In connection with the subcontract, Murphy furnished Grandy two bonds, one a performance bond and the other a so-called payment bond. The condition of the payment bond was that: "If (Murphy) shall indemnify and hold (Grandy) free and harmless from and against all loss and damage by reason of (Murphy's) failure to promptly pay to all persons supplying labor and materials used in the prosecution of the work provided for in the subcontract, then this obligation shall be null and void, otherwise to remain in full force and effect."

All the work called for by the contract was completed and the government paid Grandy the full contract price. Grandy paid a bank to which Murphy had assigned the money due him under the subcontract.

American Seating Co. had furnished materials to the subcontractor for the contract price of $6,124.37 which was due and payable. Payment was demanded from Murphy, Grandy, the subcontractor's surety and the bank but no part was paid.

While several actions were started to recover the amount, the final action was against Grandy and Murphy's surety. The action was based on the subcontractor's bond. The trial court granted the supplier a judgment, but this judgment was reversed on appeal,[1] the appellate court holding that the so-called payment bond furnished by the subcontractor was only for the purpose of indemnifying the prime contractor if it suffered any loss by reason of subcontractor's failure to pay all persons supplying labor and materials.

The appellate court indicated that the action should have been brought against Grandy and the surety under the prime contract.

(1) Glens Falls Indemnity Co. v. American Seating Co., 248 F. 2d 846, U. S. Court of Appeals, Ninth Circuit, Oct. 16, 1957.

Contract May Be Canceled If It Is Based on Fraud

A contract induced by fraud, such as mis-representation of material facts, may be rescinded by the injured party.

The circumstances under which the right of rescission may be exercised were explained in a recent New Jersey case[1] as follows:

"To be available as a ground for the rescission of a contract, it is essential that the misrepresentation alleged to have been practiced by the one party upon the other shall have been of material significance, effective in deceiving the latter and in inducing him to enter into the agreement to his injury".

[1] Sheehy v. Galipeau, 137 A. 2d 5, Superior Court of New Jersey, Appellate Division, Dec. 20, 1957.

These summaries of court decisions are prepared by I. Vernon Werbin, Esq., New York attorney and licensed professional engineer, who is author of the following books published by McGraw-Hill Book Company, Inc.: *Legal Phases of Construction Contracts; Legal Guide for Contractors, Architects and Engineers; and Legal Cases for Contractors, Architects and Engineers.*

"a ticklish job... demanding pin-point control"

Says **Del Newell,**
Job Superintendent, TOWNSEND AND BOTTUM, INC.

Working side-by-side, two Manitowoc 60-ton cranes placed 142 ft. long trusses 100 feet high at the Dan E. Karn Power Plant of the Consumers Power Company project near Essexville, Mich.

"Although hampered by constant winds blowing off Lake Huron—sometimes as high as 40 mph," Mr. Newell said, "The team of Manitowocs, equipped with 120′ booms and 30′ jibs, lifted the heavy trusses to the 100′ height, held, walked and positioned them to the point where the steelworkers could bolt them into place. Since the structural unit was too large for the men to move, they depended entirely upon the crane's precise controls to line up the bolting holes."

Ticklish jobs like the Dan E. Karn project are everyday jobs for Manitowocs. Equipped with torque converter, the precise lifts are smooth and fast . . . operators have easy, fraction-of-an-inch control, yet never lose the "feel" of the machine.

The unusual stability of these cranes contributes to the ease of making high, heavy lifts, as well as to the safety of such lifts. A low center of gravity and balanced design, give the unit extremely solid footing and equal load distribution.

There is a Manitowoc for every construction job . . . your distributor can give you details on the full range of Manitowocs and show you units that will make your jobs easier and more profitable.

Manitowoc

MANITOWOC ENGINEERING CORP.
MANITOWOC, WISCONSIN

CRANES	SHOVELS	DRAGLINES	TRENCH HOES
20 TON - 100 TON	1-YD. - 5½-YD.	1-YD. - 6-YD.	1-YD. - 2½-YD.

Howard A. Collins

New Moles President

Heavy contractors choose building foundation man

The Moles last week chose Howard A. Collins, president of Howard Collins Construction Co., New York City, as president to succeed Richard A. Johnson, president of The Arthur A. Johnson Corp.

The eastern heavy construction contractors organization also elected Mansell L. MacLean of MacLean-Grove & Co. as 1st vice-president; Chester W. Campbell of The Foundation Co. as 2nd vice president; Harry T. Immerman of Spencer, White & Prentis as treasurer; and Eugen F. Moran, Jr. of Moran Towing Corp. as secretary.

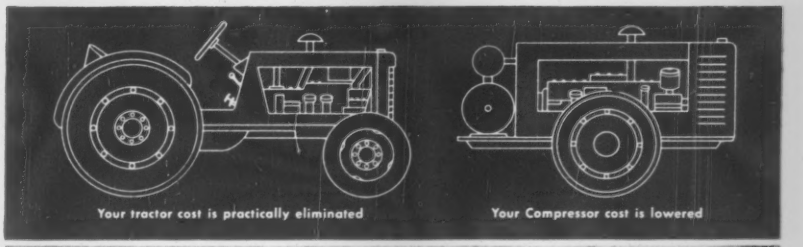
NYU and Stanford Name New Deans of Engineering

New York University and Stanford University both have named new deans of engineering. And both have named electrical engineering professors.

At NYU, John R. Ragazzini will move to the deanship July 1 from his present position as chairman of the Columbia University electrical engineering department. He will replace Norman N. Barish, who has been acting dean since Dean Thorndike Saville retired in 1957.

At Stanford, Joseph M. Pettit, 41-year-old professor of electrical engineering, becomes dean of engineering next September 1. He has been associate dean of engineering since 1955 under University Provost F. E. Terman, who in the future will devote his full time to this provost's administrative duties.

(Men and Jobs continued on page 78)



Why buy two machines when one does the job?

SCHRAMM PNEUMATRACTORS ARE BOTH AIR COMPRESSOR AND TRACTOR YET THEY COST MUCH LESS THAN BUYING TRACTOR AND COMPRESSOR

No need to buy both a tractor *and* an air compressor when one Schramm Pneumatractor does the job of both. You save on both equipment and manpower costs, and still have a more practical machine. The operator simply climbs into the seat and drives a complete 125 cfm compressed air plant from job to job. Pneumatractors go where ordinary towed portables can't.

Three types of Schramm Pneumatractors are now available . . .

Standard Pneumatractor—125 cfm compressor with tractor features. Used for lighter jobs, operates all types of construction tools including Pneumajack, sweeper, snow plow, post hole digger, winch, etc.

New Standard 250 Pneumatractor—250 cfm of air—a 40% bonus in power... operates more tools, more efficiently. Send for information on this new Schramm product.

Heavy Pneumatractor—125 cfm tractor-compressor mounted to rugged chassis. Available with front end loader and backhoe and a wide choice of other versatile attachments . . . plus the added convenience of air.

All models offer choice of gasoline or diesel power . . . are easily serviced by any engine service man. No special training needed. Send for complete information today. Mail the coupon below to Schramm, Inc., 620 North Garfield Ave., West Chester, Pa.

For maximum efficiency, every construction job needs at least one self-propelled air compressor!

See the Yellow Pages for local Sales, Service and Rental of Schramm Air Compressors.

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- ☐ Form TFP-57, Schramm 250 Standard Pneumatractors
- ☐ Bulletin 5740, Schramm Heavy Pneumatractors

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TRU-LAY *flexible* PUSH-PULLS

FOR

Remote Control Jobs on a great variety of Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on tractors and their accessories, power shovels, winches, road graders, road oilers, dump trucks, snow plows, engine-driven pumps, rock crushers and other construction equipment.

These dependable Push-Pulls are used for the remote control of hydraulic and air valves, brakes, clutches, transmissions, throttles, chokes, governors, power take-offs, and many other applications.

TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

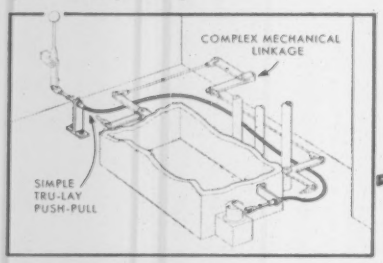
TRU-LAY PUSH-PULLS are dependable and accurate even under the most adverse conditions

They perform effectively under extremes of heat or cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold-swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls increases ease of operation and means the virtual elimination of maintenance.

Advantages of Tru-Lay Push-Pull flexibility and simplicity are pictured below

Simplicity vs Complexity

Compare the TRU-LAY PUSH-PULL cable in illustration with the mechanical linkage. PUSH-PULLS are simple, have but one moving part, are noiseless and give lifetime service accuracy. Linkages are complex, made of many parts; they wear at many points. Their use brings increased backlash, lost accuracy and vibration rattles.



"Solid as a rod but *flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, accurate, adaptable, rugged . . . they are the ideal remote controls for construction equipment.

Our DATA FILE will answer your further questions
Write for a copy without obligation

Push-Pull DATA FILE

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AMERICAN CHAIN & CABLE

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TRADE MARK

Louis G. Puls

Puls Succeeds Keener as USBR's Chief Designer

Louis G. Puls has been named chief designing engineer of the Bureau of Reclamation at Denver, succeeding Kenneth B. Keener who retired recently after 47 years with the Bureau. The chief designing engineer is the principal assistant of USBR's chief engineer in Denver and is responsible for execution of all design work by the Bureau.

Formerly assistant chief designing engineer, Mr. Puls came up as a concrete dam man, supervising such projects as Glen Canyon, Flaming Gorge and Monticello Dams. Mr. Keener directed design of these structures as well as Trinity Dam, a record 537 ft high earthfill.

Thomas & Harstad Form Seattle Consulting Firm

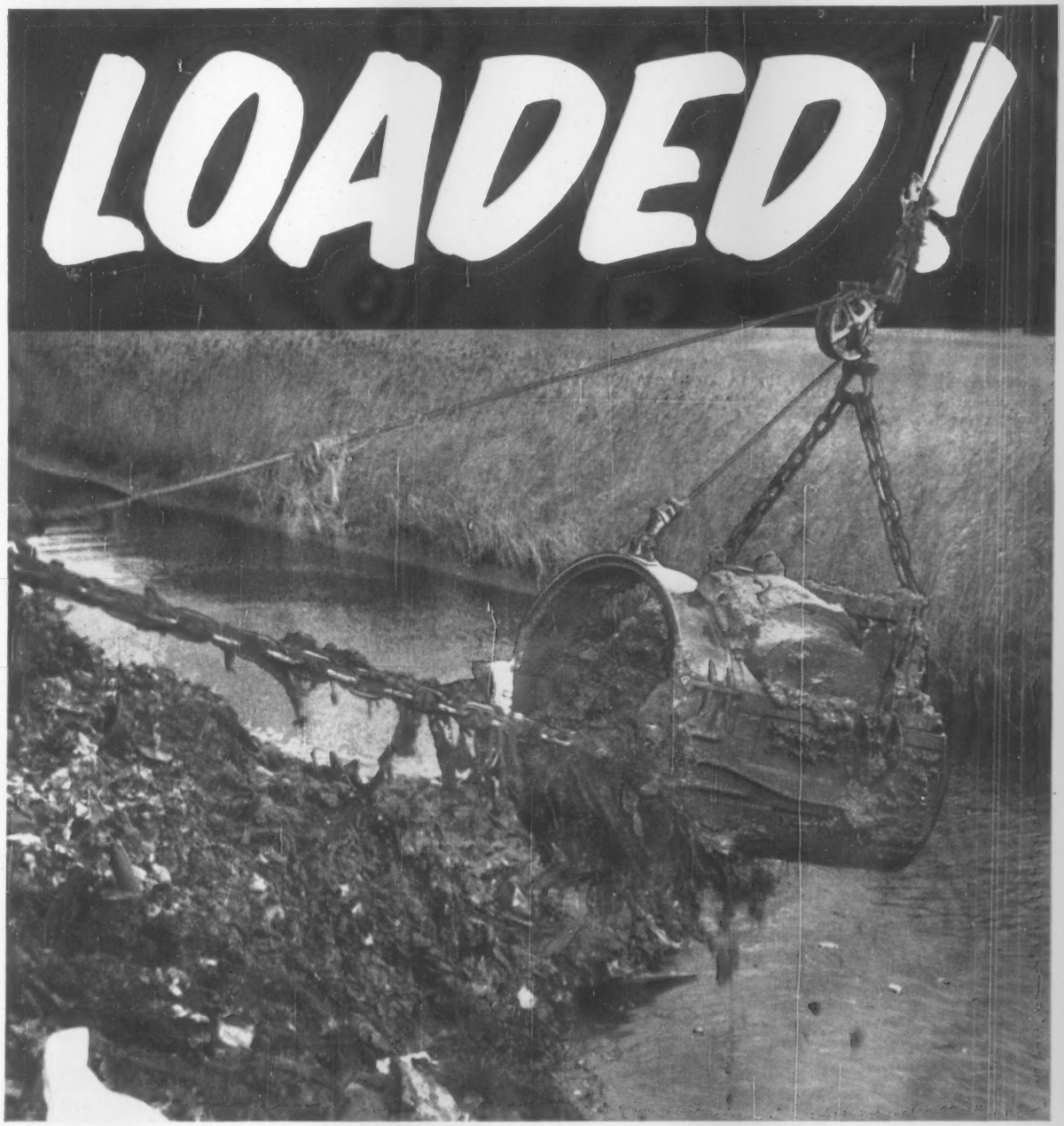
Bertram P. Thomas and Howard T. Harstad have established a new consulting firm in Seattle known as Thomas & Harstad Associates. The firm will specialize in the electric power generation and distribution field.

Mr. Thomas formerly was head of the technical engineering branch of the U. S. Army Corps of Engineers, North Pacific Division, Portland, Ore. Mr. Harstad has been a consultant in Seattle for several years.

Bastian J. Qualheim is assistant chief engineer. Project engineers are David B. Diehl, Robert W. Okey, Robert R. May, James W. Porter, Arthur Lie and James A. Nelson.

(*Men and Jobs continued on page 80*)

LOADED!



GET THIS EXTRA YARDAGE with a Hendrix Dragline Bucket. The scientifically-arranged perforations make it a "natural" for wet digging . . . lets water go through . . . leaves more room inside for material. In wet *or dry* digging, a Hendrix produces MAXIMUM bucket loads for GREATER PROFITS!

"A Type for Every Digging Purpose"

¼ to 40 Cubic Yards

HENDRIX MANUFACTURING COMPANY, Inc.

MANSFIELD, LOUISIANA

Hendrix Lightweight DRAGLINE BUCKETS

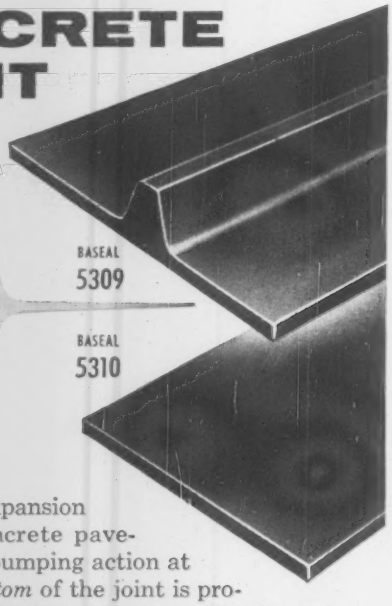
All Hendrix Buckets available without perforations

SERVICISED

"BASEAL" rubber base plate

FOR CONCRETE PAVEMENT

Keeps Water And Foreign Materials From Entering Joint At Bottom...

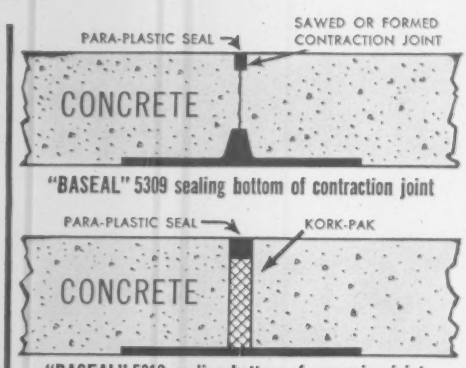


For maximum protection of expansion and contraction joints in concrete pavement, and the elimination of pumping action at joint intervals, be sure the *bottom* of the joint is protected against water seepage and the infiltration of foreign materials. Specify Servicised "BASEAL"—a resilient rubber base plate for expansion and contraction joints—made in two types, specifically designed for optimum performance and joint protection. "BASEAL" provides long-time protection because it is an extremely stable rubber compound, resistant to deterioration caused by fungus growth, etc.

Installation is simple. "BASEAL" is merely placed over the compacted pavement base prior to paving. Due to its resilient characteristics, the material will conform to the terrain after concrete is poured.

"BASEAL" is available in continuous lengths of 26 feet. Standard width is 6 inches.

Drawings at right show Servicised "BASEAL" in place in expansion and contraction joints.



Write for the SERVICISED Catalog which illustrates and details Servicised products for highway and heavy construction work.

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Public Works

McDonald D. Weinert, retired U. S. Army colonel, has been named the first Texas state water planning engineer by the State Board of Water Engineers.

Roger W. Stoy has been named township engineer at Gallitzin, Cambria County, for the Pennsylvania Department of Highways, succeeding **James B. F. Rinehart,** who was assigned to the legal division. Mr. Stoy formerly was assistant district engineer in District 9.

James Gipe has been appointed to the interstate division of the Montana Highway Department, replacing **D. H. Park,** who resigned recently. In his new position, Mr. Gipe will retain his title of resident engineer, but will be assigned to the research engineering section of the interstate division.

Business

Paul Carnahan has been advanced from president to board chairman of Great Lakes Steel Corp., Detroit, a subsidiary of National Steel Corp., Pittsburgh. **Wilfred D. MacDonnell,** formerly vice president-operations, becomes president.

Earl C. Planett, president and owner of Planett Manufacturing Co., Downey, Calif., has been named president of Wire Reinforcement Institute, Inc. **Ford P. Schusler** of Keystone Steel and Wire Co., Peoria, Ill., was named vice president.

Walter S. Todd, with the Kentucky State Highway Department for nearly 30 years, retired April 30. He began as a designer and rose to head the bridge construction division, where he has been in charge of bridge construction for the last 12 years.

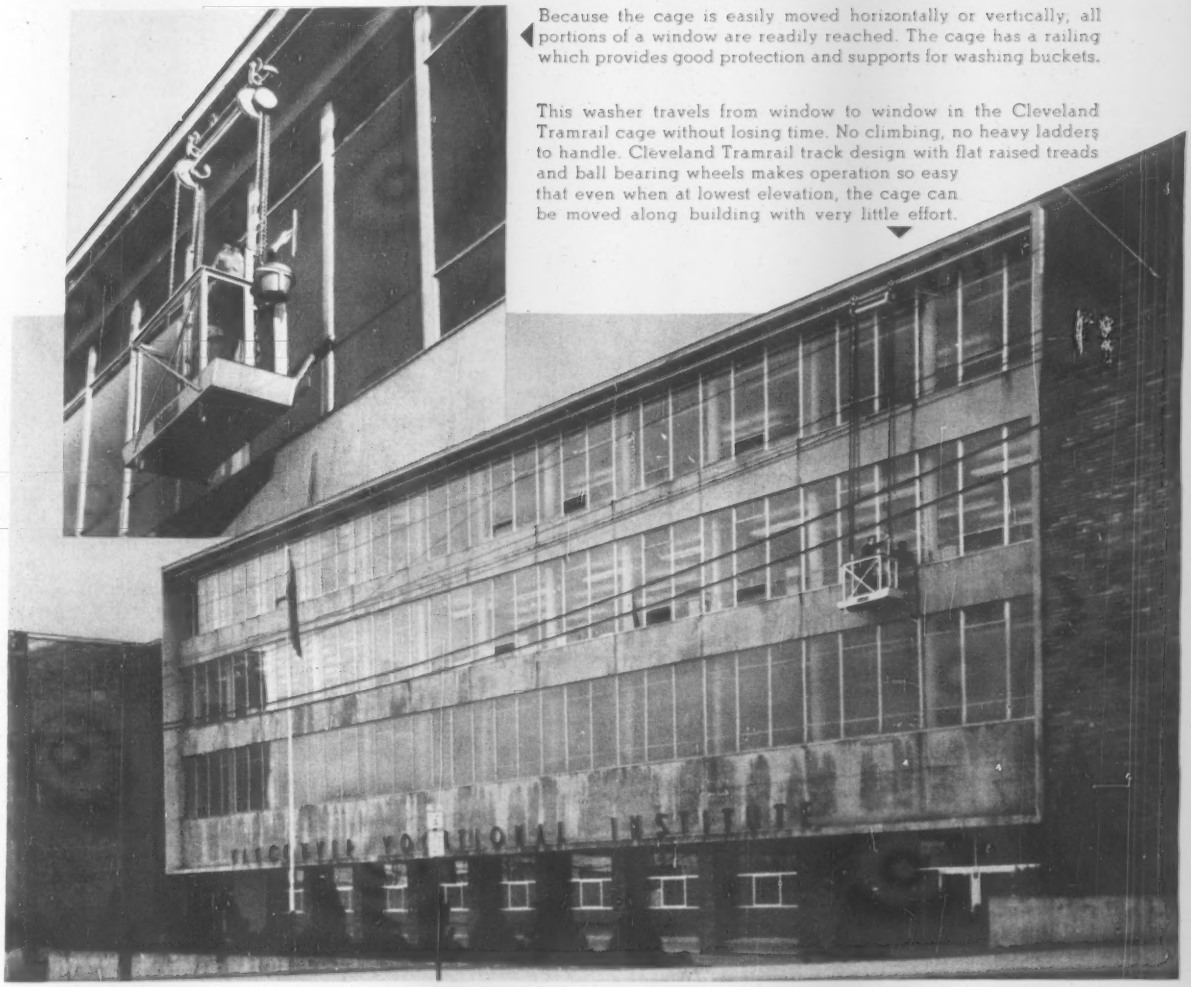
C. E. Jacob, groundwater consultant, has moved his office from Utah to Northridge, Calif.

John M. Trissal becomes vice president and chief engineer of the Illinois Central Railroad May 1. A civil engineering graduate of the University of Illinois in 1925, he has been with Illinois Central ever since, advancing to the position of assistant chief engineer in 1950, and to chief engineer in 1956.

Associations

S. James Campbell, treasurer of Harry T. Campbell Sons Corp., Baltimore, has been named chairman of the board of directors of the Associated Builders and Contractors of Maryland, which is composed of 540 construction industry firms.

An Easy Way to Keep Windows Clean



Because the cage is easily moved horizontally or vertically, all portions of a window are readily reached. The cage has a railing which provides good protection and supports for washing buckets.

This washer travels from window to window in the Cleveland Tramrail cage without losing time. No climbing, no heavy ladders to handle. Cleveland Tramrail track design with flat raised treads and ball bearing wheels makes operation so easy that even when at lowest elevation, the cage can be moved along building with very little effort.

LARGE window walls have important advantages that make them very much worthwhile, but one thing is certain: they must be washed periodically.

Cleveland Tramrail equipment speeds window washing, because it enables a man to reach any window quickly and provides him with a safe, convenient place from which to work.

The equipment consists of an overhead track mounted near the roof of a building, a carrier which operates on the track, a hoist and the washer's cage attached to the latter. The cage can be moved along the track, raised or lowered by the washer while in the cage.

Windows can be washed in one-half or less the time normally required. Even windows designed for washing from the inside are cleaned more quickly with Cleveland Tramrail. The washer need not walk from office to office, carry buckets and materials, move desks, chairs and overcome other obstacles. Instead, he propels himself from window to window with no hurdles in the way.

Whether you are concerned with window washing in an existing building or for a new one being planned, get the facts on hand-propelled and electrically driven Cleveland Tramrail window washing equipment. Ask for free copy of booklet No. 2022-A

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Overhead Materials Handling Equipment

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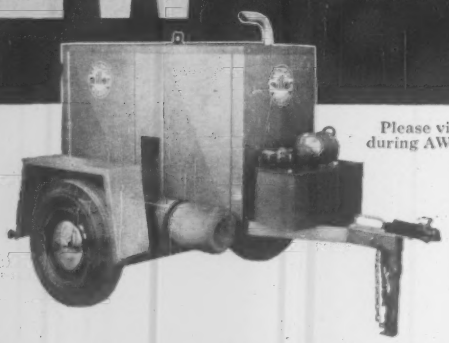
NEW DESIGN POWER PERFORMANCE



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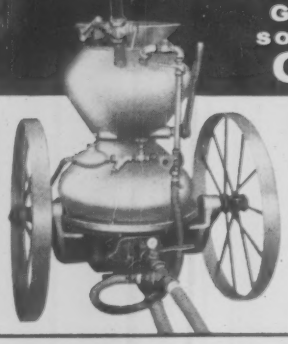
Gunite® Contractors and sole manufacturers of the CEMENT GUN®



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Obituaries

Fletcher D. Harvey, 83, southern sewer contractor for 50 years, died in Memphis May 7. He was a graduate of Alabama Polytechnic Institute at Auburn.

Leon E. Chase, 59, civil engineer, died April 26 in Viroqua, Wis. A graduate of the University of Wisconsin in 1922, he spent several years as a civil engineer on construction projects in Wisconsin, Illinois and Michigan, and was city engineer at Viroqua for four years prior to joining the firm of Alvord, Burdick & Howson, Chicago, in 1957.

John F. McCue, 55, department head and consulting engineer for J. Gordon Turnbull, Inc., Cleveland consulting engineers, died April 21. He joined the company in 1957, after having been with W. C. Kammerer & Associates for many years. He was a graduate of the University of Michigan.

Joseph J. Parks, 91, retired president of the former George Parks Sons, Inc., Buffalo, N. Y., construction firm, died April 21.

Carroll O. Dudley, 75, Sacramento contractor and construction superintendent with 62 years in the building industry, died April 29. After many years experience as construction superintendent on numerous northern California jobs, he opened his own firm. Last October he retired from active work.

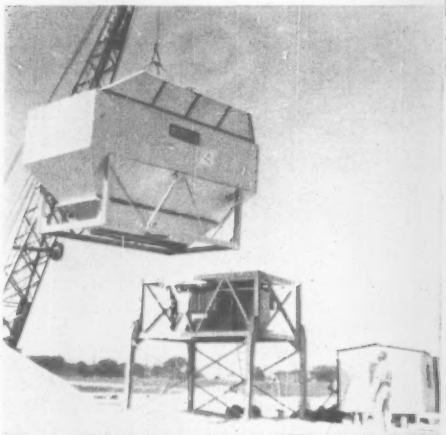
Robert J. Cole, 57, structural engineer with John A. Roebling's Sons, died March 29 in San Francisco. During the building of the Golden Gate Bridge, he was in charge of the cable construction. He also did engineering work on many other bridges throughout the country, including George Washington Bridge in New York and the Tacoma Narrows span in Washington.

Robert D. Torrance, a civil engineer who formerly was engaged in construction work in various parts of Canada, died March 24 in Toronto. He also had been sales manager of Toronto Brick Co.

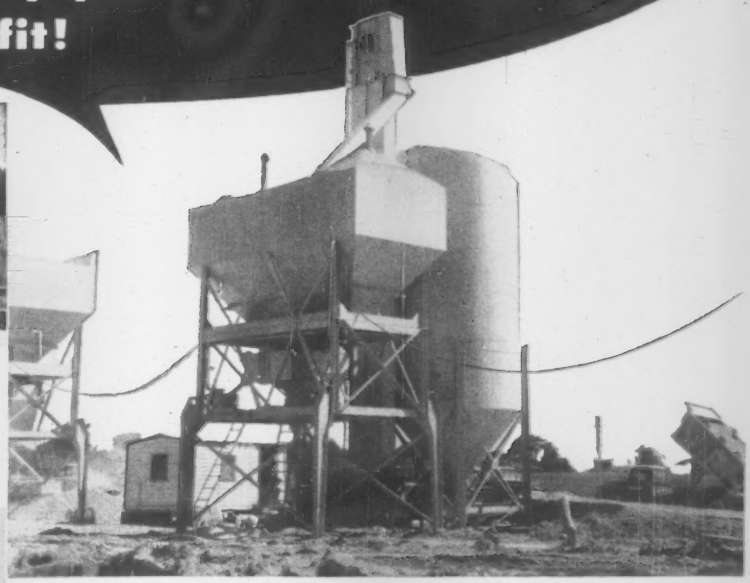
Herbert S. West, 61, assistant chief engineer in the St. Paul Department of Public Works, died March 21. A graduate of the University of Minnesota, he had been with the city department since 1923, and was promoted to assistant chief engineer last October 25. He was honored in 1955 by the American Public Works Association,

If you moved your ROADBUILDERS PLANT only ONCE . . . the BUTLER TX-4 would still pay you a Bigger Profit!

Bin section is complete, ships and erects with bracing members in one piece. Rests on top of batchers. . . .Batcher section also has its own permanent bracing for transport and erection as a unit. Moreover all piping and wiring are in-place. Quick connectors for air and electricity make hook-up a matter of minutes.



Support columns are hinged to batcher section, swing into place as batchers are raised. . . . Elevator ships in two pieces with chain and buckets installed. Cement overflow bin ships complete with support columns attached.

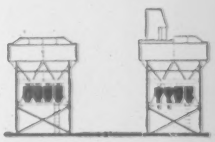


. . . And the oftener you move the more you'll appreciate the unparalleled portability of the TX-4

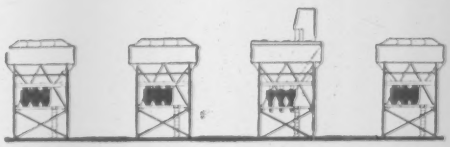
The BUTLER TX-4 Roadbuilders Plant is dismantled and erected in such a small fraction of the time required by other set-ups that you'll pocket an *extra* profit by the saving.

Start with a One Paver set-up . . . Expand Your TX-4 as you grow

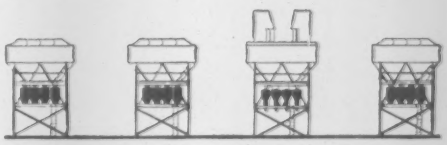
Let's assume that you are batching for one or two dual drum pavers. You start with the basic plant — two TX-4 bins, one compartmented for cement and sand, the other for two sizes of stone.



For 3 pavers simply add two more bins with batchers as shown.



And for four dual drum pavers, just add a batcher to each of the four bins.



WORLD'S RECORDS IN BATCHING SPEEDS

Production has actually been maintained at a 15 second cycle with the TX-4. But 20 seconds is more practical for figuring costs if you can spot your trucks at such a rate. Depending on the number of batchers in your TX-4 plant this means 6, 9 or 12 batches every minute. That's a world's record in production — and in profits.

• Send for this Bulletin describing the TX-4 in great detail. The whole story is there. You should have it for the BUTLER TX-4 obsoletes every other plant now in existence.

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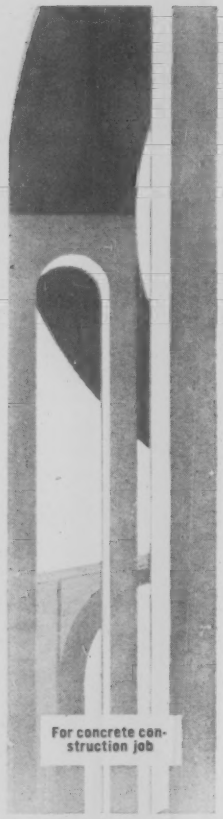

GUARANTEE SPECIFICATION COMPLIANCE WITH HORNCURE

concrete curing compounds

⁂ **Horncure 30:** 100% Resin Base Compound; complies with ASTM Specification C-309-53T. Paints or flooring adhesives can be applied over concrete cured with Horncure 30 after proper surface preparation.

⁂ **Horncure 40:** White Pigmented Concrete Curing Compound guaranteed to comply with U. S. Army Specification CRD-C-300-55; meets or exceeds most Federal, State, Municipal specifications for white pigmented curing compound.

⁂ **Horncure 50:** Wax Resin Base Compound guaranteed to comply with Navy Specifications No. 13yd and NAV docks Typical Specification Jib., Jul. 1945, Addendum #1, Mar. 1951; plus American Assn. of State Hwy. Officials Specification AA-540-148.

⁂ **Horncure 60:** Wax Resin Base Compound guaranteed to meet most municipal specifications.

A. C. Horn offers one or more concrete curing compounds for every application, interior or exterior, horizontal or vertical, above and below grade.

For condensed data, see Sweet's; or, write to Dept. H13-441 for the new 4-page Horncure catalog.

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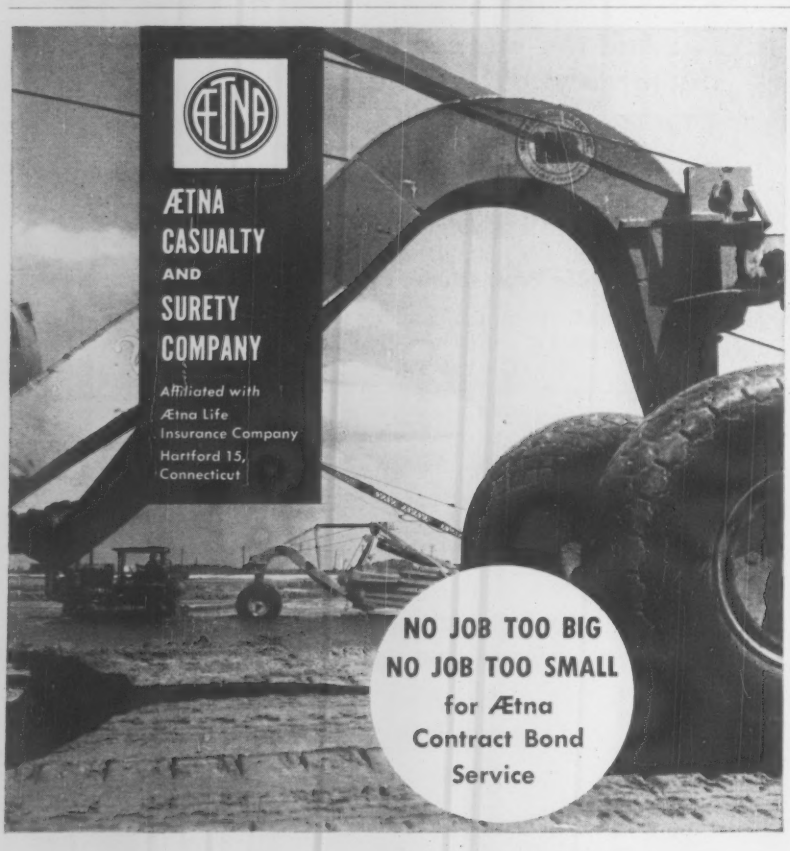
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. . . Obituaries

which presented him with its Samuel A. Greeley award for "long and faithful service to his city."

C. Herbert Groves, 70, president of C. H. Groves Co. of Minneapolis, died March 28. His firm handled the construction of many dams and bridges along the eastern seaboard, the most notable project being the overseas highway between Miami and Key West.

Frank E. Wright, 77, inspection supervisor for the Maryland State Roads Commission for more than two decades, died March 21, at Fork, Md. He had been retired for seven years.

Joseph Toomey, 65, construction superintendent for Charles H. Tompkins Co., died in Washington, D. C., March 11. In his 41 years with Tompkins, he became senior superintendent of university building construction. He had supervised all construction at George Washington University since 1934, and also supervised construction of the Ft. Myer Chapel, near Arlington Cemetary.

Wayne R. Woolley, 54, a civil engineer for Trucson Steel Division of Republic Steel Corp., died March 11 in Youngstown, Ohio. He was a graduate of the University of Illinois.

Walter J. Koch, 76, Milwaukee civil engineer, died March 16. A graduate of the University of Milwaukee, he was a civil engineer and bridge designer for the city of Chicago for 31 years until his retirement last year.

William E. Sheddan, 73, engineering consultant for the city of Jacksonville, Fla., died there early in March. A Stetson University graduate, he also had served as Jacksonville city engineer.

John Kier, 49, president of the Beavers and of the W. E. Kier Construction Company, died March 5, in Beverly Hills, Calif. Mr. Kier, a graduate of Stanford University, participated in the construction of Bonneville, Grand Coulee and Palos Verdes Dams. He had been elected president of the West Coast heavy construction fraternity on Jan. 16 and has been succeeded as Beaver president by John M. Sawyer of Macco Corp.

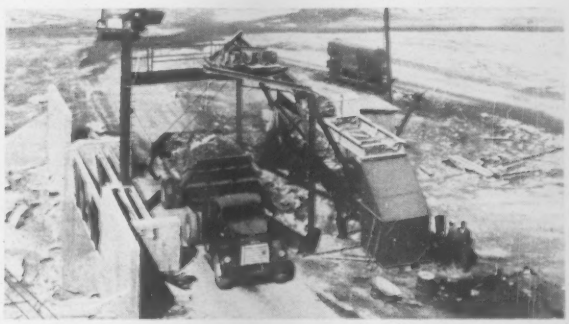
Millard F. Sydnor, 71, who was formerly an engineer with National Vulcanized Fibre Co., died March 19 in Marshallton, Del.

"It takes a lot of truck to handle 25- to 30-ton loads!"

—says W. B. Couch, superintendent of the Campbell Limestone Co., Beverly, S. C., in reporting on their GMC Diesels

OFF-THE-ROAD HAULING THAT'S TOO HEAVY FOR LEGAL HIGHWAY TRAVEL is rugged business. Yet Campbell Limestone's GMC Diesels do this day after day—running 10-hour days in the summer. They've never required any pampering—even after the equivalent of 100,000 miles of this work. It's the pay-off on GMC's *all-truck* construction—as the world's largest exclusive commercial vehicle manufacturer can supply it.

SOME OF THE HUGE BOULDERS THAT HURTLE DOWN into Campbell's GMC's are half the size of a sedan. In fact, the specially built dump bodies are of 1-inch steel plate. And underneath is the GMC brand of super-stamina that shrugs off this kind of punishment—for years.



EVEN CLIMBING THE STEEP RAMPS with their huge loads is easy for these GMC's. They've got the power reserve to keep rolling where other trucks can't make the grade. You can thank those high-torque *2-cycle* Diesels for that!

GMC TRUCK & COACH—*A General Motors Division*

GMC-America's Ablest Trucks *½ to 45 tons*

SAUERMAN
Storage Methods...

REMOTE CONTROL
MATERIALS HANDLING

OUTDOOR STORAGE

Coke handling
is a Sauerman job at most delayed coking plants. This 4-yd. Drag-Scraper stockpiles by remote control from two operators' stations. *(Request Sauerman News 149.)*

INDOOR STORAGE

Any Bulk Material
can be handled by remote control with a Sauerman Machine. Personnel do not have to enter the area. *(Request Sauerman News 147.)*

Ask for Catalog E, Bulk Storage by Scraper, for complete description of the Sauerman Method.

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BELLWOOD, ILLINOIS

Highway Prices — District of Columbia

Average of Range of Contract Prices, 1957—2nd Half

Bid Awards, 1957-2nd half

Items	Unit	No. Jobs	Avg	Unit Prices Range
Bridge				
Excavation, unclass	cy	3	$1.34	$1.00– $1.76
Backfill & fill	cy	3	1.74	1.50– 1.98
Conc, cl BB, substructure	cy	1	33.15	
tunnel	cy	1	35.50	
subfoundation, struct	cy	1	30.00	
Steel, reinforcing	lb	4	0.15	0.12– 0.20
Stone masonry facing	cf	3	7.04	4.40– 10.00
Membrane waterproofing	sy	3	2.90	2.75– 3.00
Backfill, porous	cy	3	7.53	5.00– 10.00
Dampproofing	sy	3	1.08	0.80– 1.50
Piles, test	ea	2	525.00	500.00–550.00
conc, cast in place	lf	1	7.70	
Excavation, structural	cy	4	5.98	2.00– 8.00
Brick pavement	sy	1	11.80	
lane marker	lf	1	3.40	
Conc protection course	sy	1	1.76	
Mortar bed for tile	sf	1	0.33	
Steel sheet piling	sf	1	5.50	
CIP & fittings, 3"	lf	1	5.28	
6"	lf	1	6.05	
8"	lf	1	7.15	
Waterstop, type 1	lf	1	1.90	
2	lf	1	2.25	
Asph conc, hot, base	t	2	9.63	9.25– 10.00
surf	t	2	12.50	12.00– 13.00
Conc, cl BB, footing	cy	3	64.00	34.00–110.00
wall	cy	3	73.00	69.00– 80.00
superstruct	cy	3	155.33	76.00–235.00
Struct steel, low alloy	lb	2	0.26	0.24– 0.27
carbon	lb	2	0.27	0.26– 0.28
Road				
Exc, earth or ordinary	cy	10	1.06	0.46– 1.76
borrow	cy	9	2.61	1.35– 3.85
hard surf, pavement	cy	9	2.39	0.75– 3.25
hand	cy	9	11.94	8.00– 16.50
stripping	cy	5	9.00	5.00– 12.50
surp matl, overhaul over 1 mile	¼mi	2	0.03	0.01– 0.05
Base crse, select soil, 8"	sy	6	0.74	0.55– 0.90
Reinf cmt conc base, 8"	sy	4	5.63	5.10– 7.90
pave, 8"	sy	6	6.24	5.62– 7.50
Cmt conc pavement, 7"	sy	9	6.99	5.20– 8.50
sidewalk, 4"	sy	10	4.75	3.75– 5.60
repl repair	sy	10	5.31	3.50– 7.00
base course	cy	11	29.47	22.00– 42.00
pavement	cy	9	26.52	16.50– 38.70
island	cy	6	35.68	22.50– 60.00
mix for walls, copngs, steps	cy	6	41.68	16.50– 75.00
for header curb	cy	5	35.30	20.50– 48.00
curb	lf	11	2.39	0.98– 3.55
recessed	lf	2	1.64	1.28– 2.00
com cb & guttr	lf	8	3.05	2.40– 3.85
recessed	lf	1	3.35	
transition curb	cy	6	58.87	38.00– 75.00
gutter or shldr	sy	9	8.55	7.00– 10.75
traffic lane hdr curb, ft color	cy	3	139.17	50.00–200.00

Item	Unit	No. Jobs	Avg	Unit Prices Range
Pavmt, spec haunched, 4"	sy	3	5.78	4.85– 7.50
Asph conc base course	t	4	14.95	6.50– 24.45
sheet paving	sy	4	1.80	1.25– 2.10
Binder mixture	t	5	14.07	9.00– 19.85
Surface mixture	t	6	18.45	10.00– 24.45
Bit surf course CM-B	t	7	12.42	8.00– 19.45
Asph conc surf course	sy	2	0.99	0.88– 1.10
	t	3	9.17	6.90– 10.60
Dampproofing	sy	1	0.25	
Bit level crse matl, mod	t	3	19.13	10.00– 24.45
Asph conc base crse	t	4	12.19	7.85– 16.50
surf crse, mod	t	1	8.00	
Stn curb, 8x12", str set	lf	1	2.60	
circ set	lf	2	3.55	3.50– 3.60
str reset	lf	2	3.53	3.50– 3.55
8x8", str reset	lf	2	2.98	2.60– 3.35
6x20", str reset	lf	1	1.50	
8x8" or 8x12", circ reset	lf	2	2.88	2.25– 3.50
Stn or cmt curb adjust	lf	2	1.25	1.00– 1.50
curb, old, rem & haul	lf	8	0.70	0.40– 1.00
circ reset	lf	5	2.46	1.70– 3.60
MH frame & basin cover, sewer & water adjust	ea	8	10.96	3.50– 18.50
f	ea	5	59.44	34.00–100.00
MH frames, PUC adjust	ea	4	6.15	3.50– 8.00
& cvrs, PUC&DC adjust	ea	3	15.67	6.00– 22.50
Anchor bolts	ea	1	2.00	
Portland cement	bbl	3	5.28	4.75– 6.10
Calcium chloride	lb	7	0.04	0.03– 0.05
Cutting to neat line	lf	7	0.71	0.30– 1.00
Exp jts, add 1"	lf	3	0.68	0.60– 0.75
½" trans for pave bet alley & rdwy slabs	lf	3	1.00	0.70– 1.30
cmt conc sidewalk	lf	8	0.62	0.48– 1.00
Mac, existing 3" scarify	sy	8	0.44	0.30– 0.60
Sidewalk, var types repair	sy	2	0.30	0.09– 0.50
brick repair	sy	2	1.00	
Wire mesh reinf, add 50#	sy	8	0.75	0.60– 1.00
Cmt conc curb for alley corners, circ	lf	7	2.80	1.50– 3.50
Reinf cmt conc curb, circ	lf	1	2.50	
Asph conc surf, heater meth	t	4	23.85	22.95– 25.00
Bus loading area				
Cmt conc, shallow	cy	2	64.25	63.75– 64.75
pavement	cy	2	64.63	62.75– 66.50
MH adaptor rings	ea	3	4.67	2.00– 10.00
Cl water valve casing, old style remove	ea	3	35.67	18.50– 60.00
Reinf c t conc curb & gutter, circ	lf	4	3.51	3.00– 4.65
Subdrain, 6" laid	lf	2	2.48	1.80– 3.15
add excavation	cy	1	1.00	
Concrete sand	cy	1	2.00	
pipe laid	lf	1	1.80	
Exc for conn, incl disposal	cy	1	2.00	
Bracing lumber	Mbf	1	20.00	
Guard rail	lf	2	3.85	3.70– 4.00
Stone masonry walls	cy	2	87.00	56.00–118.00
Sodding	sy	2	0.47	0.44– 0.50
Topsoil, 4"	sy	4	0.60	0.32– 1.00
Base crse, selected soil	cy	3	3.57	3.46– 3.75
Cmt conc comb curb & gut	lf	1	3.75	

Bidding Close on 4 Span Steel Bridge, Illinois

With the low bid less than 5% under the high of the four bids on this steel deck plate girder bridge over the LaMoine River on U.S. Route 24 at Ripley, Ill., the $184,335 contract went to Sangamo Construction Co., Springfield, Ill. Work is for the Illinois Division of Highways at Springfield, R. R. Bartelsmeyer, chief engineer.

In addition to four spans, two at 98 ft and two at 125 ft, there are two approach spans of 18 ft each. The job is a normal river bridge structure, but sheeting may be required for the footings of the piers.

Specifications for Class A and X concrete are 3,500 psi compressive strength, 650 lb modulus of rupture at 14 days.

The contractor furnishes all materials except fabricated structural steel.

Wages on the job include: concrete finishers, $3.15; truck drivers, $2.45; carpenters, $3.00; power machine operators, $3.30; common laborers, $2.375.

1C	Sangamo Constr. Co., Springfield, Ill	$184,335
2	Caldwell Eng. Co., Jacksonville, Ill	185,426
4	Calhoun County Contr. Corp., Springfield	193,571

Bids: 3-25-58

Items	Unit	Quantity	Unit Prices 1C	2
Conc, cl X	cy	664.4	$90.00	$80.00
A	cy	427.6	70.00	73.50
Reinforcement bars	lb	172,390	0.17	0.18
Structural steel erect	lb	622,290	0.0425	0.04
Metal handrail erect	lb	974	4.50	2.60
Name plate	ea	1	50.00	40.00
Piles, steel furn	lf	500	4.00	5.00
furn	lf	1,253	5.50	6.50
drive	lf	1,753	3.00	3.00
test	ea	3	500.00	820.00
Excavation, struct., cl A	cy	700	3.00	3.00
cl B	cy	330	5.00	6.00
rock	cy	30	20.00	30.00
earth	cy	7,200	0.50	1.10
Slope wall	sy	1,080	9.00	9.50
Cast iron grate	ea	2	60.00	100.00
Trees remove	acre	1.4	700.00	450.00

Completion schedule: 130 days
Liq damages: Engineering costs after completion date.

The New Age of Concrete

brings greater architectural beauty and new structural form to buildings

An unusual example of the adaptability of concrete is shown in the foreground structure of the Court House Square Project developed by Webb & Knapp in Denver. Technically known as a hyperbolic paraboloid, this cast-in-place concrete shell, resting on four corners only, is self-supporting, requiring no columns or interior supports of any kind.

The beauty, economy, clean lines, grace, and enduring qualities of architectural concrete buildings make them an easy choice for almost any type of use. New finishing techniques and new concepts of structural design make possible unlimited selection of building shapes and appearance.

Ideal Cement is produced in 15 plants extending from the West Coast through the Rocky Mountain region, the Southwest, and the Deep South, which assure an ample supply of Portland cement for any architectural use.

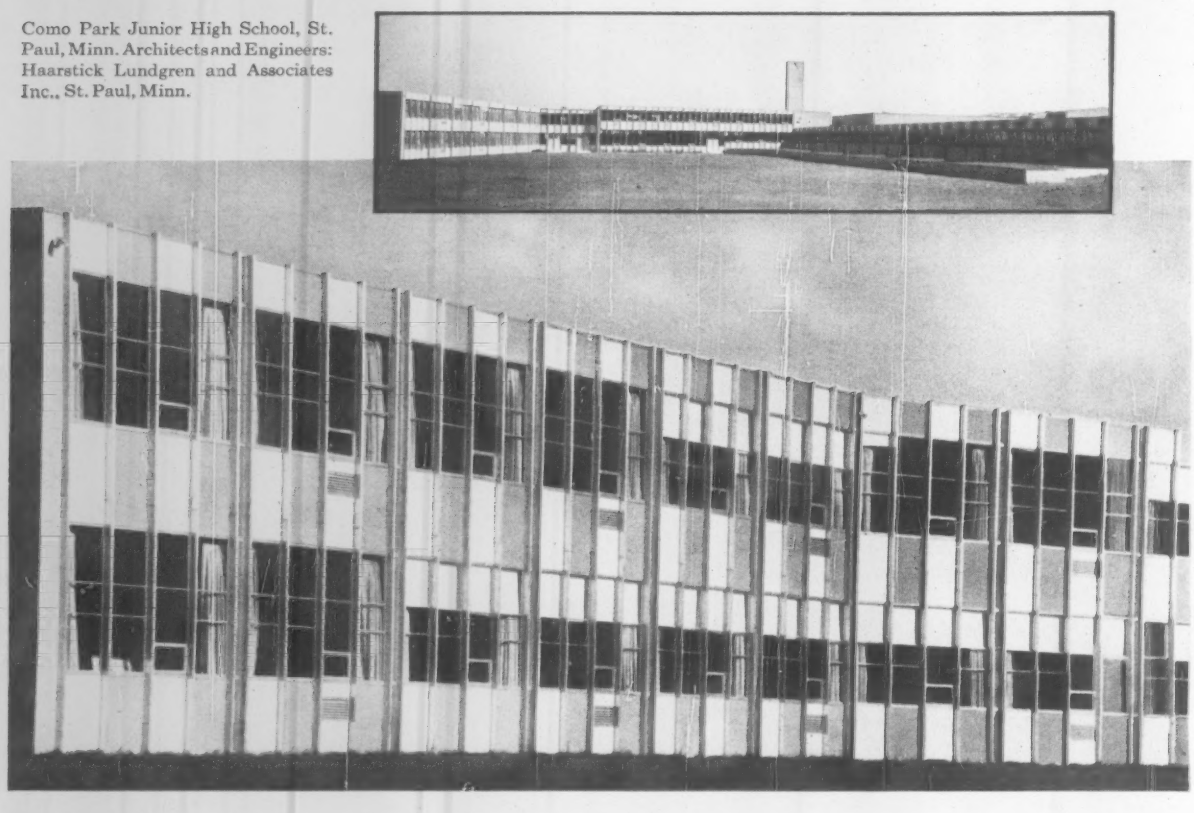
PORTLAND IDEAL CEMENT

IDEAL CEMENT COMPANY

DENVER, COLORADO

15 Plants and 4 Terminals Serving Some of the Most Rapidly Growing Areas of the Nation.

Como Park Junior High School, St. Paul, Minn. Architects and Engineers: Haarstick Lundgren and Associates Inc., St. Paul, Minn.



NOW! Johns-Manville TRANSITOP® building panels are PRE-PRIMED to take any type of paint finish

. . . provide unlimited color possibilities in economical curtain-wall construction

PRE-PRIMED Transitop panels give architects and builders new freedom in the use of color as an expression of decoration in both exterior curtain wall and interior construction.

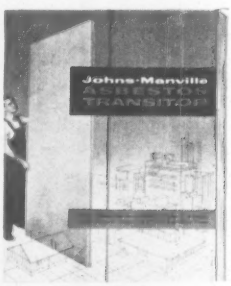
The factory pre-primed coat, on both faces of Transitop panels, eliminates priming on the job, acts as a first face coat. J-M Transitop will accept any good grade of paint of any type or color. Labor and painting costs at the job site are reduced. A decorative color job is completed faster.

A variety of decorative effects are possible by combining painted Transitop panels with various shapes, sizes and finishes of spandrel- and mullion-type construction.

Johns-Manville Transitop is an insulating structural panel, consisting of an impregnated core faced on two sides with incombustible Asbestos Flexboard® sheets. The core of the impregnated insulating board cuts heat loss in winter, keeps the building cooler in summer.

Panels 4′ wide by 8′ up to 12′ in length speed construction, save on costs. Because Transitop panels weigh only 4.7 lbs. per square foot in 1-9/16″ thickness, they reduce the dead-load factor. This permits lighter framing and less expensive construction.

Find out more about how you can save on construction cost by using Transitop panels for insulated curtain walls, as free-standing or structural interior walls, for roof deck construction. For illustrated brochure "J-M Asbestos Transitop," write to: Johns-Manville, Box 158, New York 16, N. Y. In Canada, 565 Lakeshore Rd. E., Port Credit, Ont.



JOHNS-MANVILLE

JOHNS MANVILLE JM PRODUCTS

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Iron and Steel Products: Last, May 15; Next, Jun. 12
- Wood Products, Glass, Explosives, Chemicals: Last, May 22; Next, Jun. 19
- Clay Products, Lime, Plaster, Paint, Roofing: Last, May 29; Next, Jun. 26
- Wage Rates, Building Board, Lath, Insulation: Last, May 29; Next, Jun. 43

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload del.* per block		CONCRETE Ready Mixed 1:2:4 del. 50 cy & over
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$4.35*am*	$3.94*am*	$3.60*m*	$2.28	$2.28	$2.50‡	$2.18	$2.33	$1.65	$1.75	$0.175	$ .21	$14.50*g*
Baltimore	3.90*a*	3.80*a*	3.32*a*	2.80‡*a*	2.80‡*a*	2.25‡*a*	2.85‡*a*	2.90‡*a*	2.05‡*a*	2.00‡*a*	.18*a*	.18*a*	13.10/13.60
Birmingham	4.23	3.30*f*	....	2.53*n*	2.53*n*	2.13*n*	2.75	2.75	1.55	1.65	.18	.18	12.55
Boston	5.65*ei*	4.59*a*	4.97*e*	3.00*am*	3.00*am*	3.00*am*	1.75*am*	1.85*am*	....	....	.23	.275*a*	15.00*k*
Chicago	4.13*ag*	3.87*a*	3.90/3.95	3.78‡*b*	3.78‡*b*	4.13‡*b*	3.95‡*b*	3.95‡*b*	2.25‡	2.25‡	.25	.25*b*	13.50
Cincinnati	4.70*c*	4.18*c*	4.20*c*	2.29‡*c*	2.34‡*c*	2.34‡*c*	2.64‡*c*	2.64‡*c*	1.89	1.89	.19	.24*a*	13.25
Cleveland	N.A. in C.L.	....	3.88*c*	2.25*ef*	2.10*f*	1.75	4.50‡*a*	4.50‡*a*	3.45‡*a*	3.45‡*a*	....	.22	16.15
Dallas	3.75*a*	3.25*a*	3.63	2.65	2.70	1.90	2.43	2.63	....	....	....	.27	12.00
Denver	4.79*a*	4.29*a*	4.79	1.90	2.05	1.20‡*b*	....	....	....	....	.22	.245*a*	10.70
Detroit	4.10*a*	3.60*ag*	3.73*ag*	4.50‡*b*	4.50‡*b*	4.25	3.75‡	3.75‡	3.50‡	3.50‡	.24	.27*a*	14.40
Kansas City	4.23*a*	3.83*a*	4.10*a*	....	....	1.70‡*a*	2.00‡*a*	2.00‡*a*	....	....	.22*a*	.26*c*	13.50
Los Angeles	5.12*ch*	4.68*ch*	5.60	2.56‡*a*	2.76‡*a*	2.41‡*a*	2.41‡*a*	2.46‡*a*	....	....	.17*fm*	.285*m*	12.95*h*
Minneapolis	4.44*a*	4.04*a*	4.10*a*	2.70‡*ag*	2.70‡*ag*	1.60‡*ag*	3.75‡*g*	3.75‡*ag*	....	....	.19	....	14.30*f*
Montreal	3.36*d*	3.11*d*	3.72	1.90‡*a*	2.15‡*a*	2.25‡*a*	1.90‡*s*	2.15‡*s*	2.00	2.00	.20	.20*a*	10.80*ek*
New Orleans	4.06*a*	3.60*a*	3.85	2.45	2.45	2.09	....	....	1.45	1.45	.275	....	14.00
New York	4.83*a*	4.42*a*	3.72	3.20*bk*	3.20*bk*	2.30*bk*	3.10*bl*	3.10*bl*	....	....	.235*m*	.270*b*	17.40*an*
Philadelphia	4.57‡*a*	4.16‡*a*	3.61‡	2.85‡*a*	2.85‡*a*	2.35‡*a*	2.70‡	2.80‡	2.00	2.35	.25/.32	....	14/15*do*
Pittsburgh	5.65*bjk*	4.62*bj*	5.00*bjl*	2.60*aq*	2.60*aq*	3.00*aq*	2.00*e*	2.00*e*	2.20	2.20	.26	.28	15.80
St. Louis	4.16/4.48*c*	3.76/4.08*c*	3.86/4.18	3.25*am*	3.10*am*	2.40/3.10*am*	1.65*j*	1.75*j*	....	....	.24	.30*c*	12.65/13.15
San Francisco	4.09*e*	3.69*c*	4.53*c*	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28*el*	12.75*c*
Seattle	4.27*a*	3.70*a*	4.45*a*	4.25‡*bm*	4.25‡*bm*	4.25‡*bm*	4.50‡*bm*	4.50‡*bm*	....	....	.26	.37*c*	13.90*gjl*
Toronto	4.00*a*	3.84*a*	4.00*a*	2.40‡	2.40‡	2.05‡	2.20	2.20	2.20	2.20	.26	.275*e*	15.25

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a Less 10¢ disc, 15 days. *b Less 2% disc, 15 days. *c Less 10¢ disc, 10 days. *d Truckload lots, deliv. 10¢ disc, 20 days. *e Truckload lots *f Fob mill, add 14.58 to $21.31 per car switching charges *g fob mill + freight *h LCL. *i Less 2% disc, 10 days *j Truck lots, fob yard *k 100 bag lots *l over 150 sacks *m Incl. 4¢ Ga. frt. increase

SAND GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons or more. *e ½". *f Pea gravel. *g Less 5% for cash. *h Less than 5 tons. *i Plus 8% mun. & prov. tax *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *q fob yard

CONCRETE BLOCK: *a Cinder *b Waylite. *c Haydite. *d Celocrete *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *j F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 18.

READY MIXED CONCRETE: *a 5 cu. yds. or over del. Man. *b 25 cu. yds or more. *c 10-100 cy. brackets. *d 1-3 mi. zone. *e 2,000 lb comp. *f 2,500 lb. comp. *g Less 25¢ disc, 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 5% mun. & prov. *l 1:2½:3½. *m F.o.b. yard. *n Plus escalator clause. *o Add 15¢ for ea. add'l 1-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.45†	Buffington, Ind	$3.40†	Steelton, Minn	$3.45†	Muskegon, Mich	$3.45†	Toledo, O	$3.45†
Clinchfield, Ga	3.45†	Independence, Kan	3.25†	Leeds, Ala	3.30†	Saginaw, Mich	3.45†	Milwaukee, Wis	3.50†
Kingsport, Tenn	3.45†	Hannibal, Mo	3.35†	Duluth, Minn	3.45†	Wyandotte, Mich	3.45†	Green Bay, Wis	3.50†
West Des Moines, Iowa	3.50†	Northampton, Pa	3.35†	Hudson, N. Y.	3.35†	Buffalo, N. Y	3.55†	Ironton, O	3.45†
Nazareth, Pa	3.35†	Universal, Pa	3.60†	Alpena, Mich	3.35†	Oswego, N. Y	3.60†	Montreal City	2.56†
Bath, Pa	3.35†	Waco, Tex. (+ 10¢ tax)	3.35†	Detroit, Mich	3.45†	Cleveland, O	3.50†	W. Winfield, Pa	3.60†
Lesley, Pa	3.35†	Glant, S. C	3.45†	Howes Cave, N. Y	3.35†	Alsen, N. Y.	3.35†	Security, Md	3.35†

† *Prices to hold for first quarter of* 1958.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

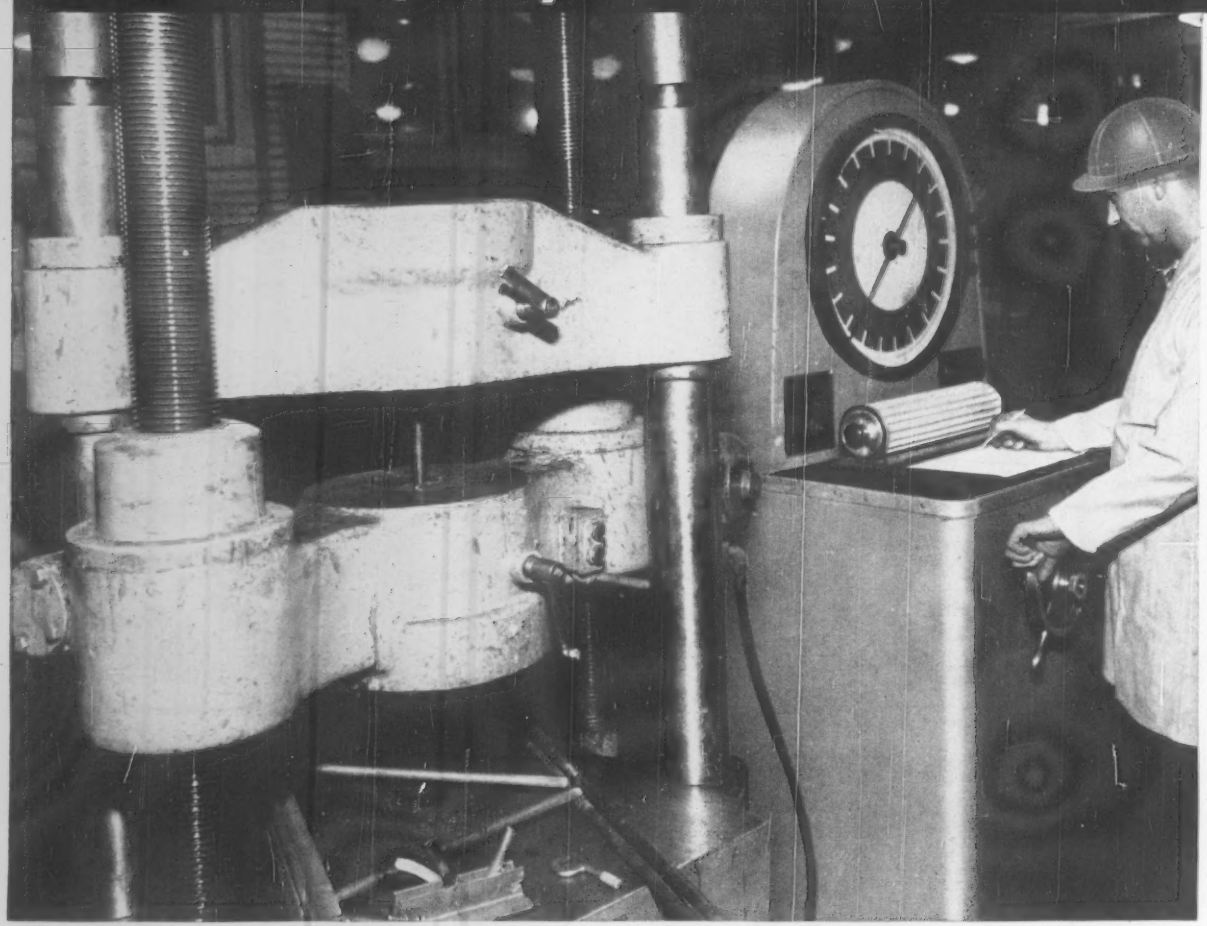
	PAVING BRICK AND BLOCK			PAVING ASPHALT		ASPHALT BINDERS FLUXES		CUTBACK ASPHALT MC		ROAD OIL	ASPHALT EMULSION RSI	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8¼ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Per ton, less than 80 penetration		Per gal., 80-300 penetration		per ton		Per gal.	Per gal.	
				Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta				$30.50	$45.00	$0.15	$0.26	$0.125*Fw*	$0.28*Fw*	$0.14	$0.125	$0.30
Baltimore	150.00‡			23.00*i*		.095*i*	0.185*i*	10*wE*	19*wE*	10*i*	105*i*	0.195*i*
Birmingham		62.00*i*										
Boston				22.00*ap*	46.00*ap*	.22*a*	.46*a*	105*aFw*	24*aFw*	105*ao*	.174*aGo*	.235*aGo*
Chicago	150.00‡	90.00‡*b*	3.95/4.00‡*j*	21.20*b*	31.20*b*	20.40*bx*	30.40*bx*	975*bwH*	1775*bwH*	080*b*	....	....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	.....	89.50*d*	6.30*g*	25.00*k*	.....	25.00*kr*	.....	1180*AwF*	.....	.....	1180*AG*	214*G*
Dallas	*e*	40.78	*e*	26.35	45.39	.1116	.1944	29.85	51.40	.1080	.1116	.1944
Denver	.....	58.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	116.00	.....	33.05	.....	32.45*r*	.....	13.50*I*	.....	.1133		28
Kansas City	*e*	*e*	*e*	16.80*cf*	.....	16.80*r*	.....	0825*cwJ*	.....	06*c*	0.125*c*	.....
Los Angeles	*e*	.....	*e*	22.50*dmx*	.....	22.50*dnx*	.....	24.00*dx K*		23.00*dr*	1038*j*	2038*j*
Minneapolis	.....	.....	3.73*h*	26.00		29.50*r*		0.115*w*		0.105	125	
Montreal	*e*	*e*	*e*	32.50*n*	44.80*n*	176*n*	226*n*	38.70*nuE*	23.70*nuE*	154*n*	242*ns*	27*ns*
New Orleans	.....	.....	.....	20.00*e*	.....	20.00*er*	*e*	095*ew*	*o*	085*B*	095*BL*	1905*B*
New York			3.50*f*	20.99*m*	42.94*m*	20.99*rt*	40.94*rt*	9.61*wF*	19.01*wF*	.....	9.68*u*	19.11*u*
Philadelphia	175.185	110.120	4.06	24.00	.....	24.00	.....	11*wF*	.....	.105		
Pittsburgh	60.00*k*	99.12*ln*	6.35	32.40*i*		32.40*ir*		1411*i*		14‡	1411*i*	
St. Louis	.....		.....	19.74*f*		1825		0893*fwM*		0.165	825	
San Francisco	.....	70.00*c*	.....	24.50*g*	41.50*g*	24.50*gkr*	41.50*gkr*	24.50*g N*	43.00*g N*	25.25*rg*	25.50*yr*	2063*y*
Seattle	.....		.....	27.00*z*	42.00*h*	27.50*z*	.....	28.50 *K*		26.25*kr*	25.50*kr*	46.10*krr*
Toronto	.....	135.50	4.50*f*	40.10	59.38	0.2005	0.2445	0.214*w*	0.258*w*	0.198	0.216	271

‡ Delivered.

PAVING BRICK & BLOCK: *b 3 x 3¼ x 8. *c 2¼ x 8¼ x 4. *d LCL, truck deliveries. *e Not used. *f 2" interior 6# treat. *g 3". *h 2" tr, 8#. *i 3 x 3 x 8½. *j 2½", 6 lb. tr. *k Used. *l Redshale; *m Pine; oak $6.57. *n Truck del.

ASPHALTS: *a Price at plant, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segunda. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40-300 penetr. *n Fed. tax included; add 5% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60-70 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 150-300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks. *y F.o.b. Oakland. *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland. *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS, SS. *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095 *K MC 3,4,& 5. *L MS. *M MC 1-5, RC 1-5, $0.106. *N MC 3. *O Truckload. *P F.o.b. refinery Savannah; $0.09 gal., tank cars; $0.20 gal., drums. *Q F.o.b. Eldorado, Ark.

SJI *Quality Control Here...*



He's Pulling a Steel Joist Apart

To prove quality of the "S" Series open web steel joists produced in its member company plants, the Steel Joist Institute demands punishing tests not only on the entire joists but on its component parts as well.

Here we see an inspector from an independent testing laboratory testing the tensile strength of a web section cut from a standard "S" Series steel joist selected at random from the production line. There are 15 other separate tests and inspections which the joist must undergo and pass successfully, before the manufacturer's joists can be granted the Institute's seal of approval.

STEEL JOIST INSTITUTE

1346 CONNECTICUT AVE., N. W. • WASHINGTON 6, D. C.

Steel joists of the designations adopted by the Steel Joist Institute and manufactured by the following companies have been investigated and approved by the Steel Joist Institute:

AMERICAN BRIDGE DIVISION
United States Steel Corporation
ARBUTUS STEEL COMPANY
BETHLEHEM STEEL COMPANY
BUILDERS STRUCTURAL STEEL CORP.
CECO STEEL PRODUCTS CORP.
COLORADO BUILDERS SUPPLY CO.
CONCRETE STEEL COMPANY
JOHN HANCOCK, JR., INCORPORATED
LACLEDE STEEL COMPANY
MACOMBER INCORPORATED
SHEFFIELD DIVISION
Armco Steel Corporation
SOUTHWEST STEEL PRODUCTS
TRUSCON STEEL DIVISION
Republic Steel Corporation
VIRGINIA STEEL COMPANY

Means Better Construction Here...

To Put a Stronger Building Together

SJI-approved "S" Series joists, having demonstrated their strength and durability under the SJI QVP* program, are made available to architects, engineers, contractors and others who specify construction materials. These joists impart added strength to the structures in which they are used.

Strength, however, is only one of many advantages offered by SJI-approved open web steel joists. Other outstanding features include light weight, easy handling and placement, fire and vermin resistance, versatility and adaptability to different architectural designs.

*Quality Verification Program.

STEEL JOIST INSTITUTE APPROVED SJI © SJI

FREE *Write for technical bulletins*

See our insert in Sweet's Architectural File 2c/St

STEEL JOIST INSTITUTE
1346 Connecticut Ave., N. W.
Washington 6, D. C.

Please send technical bulletin(s) checked below:

☐ 1BR—BRIDGING
☐ 1QVP—QUALITY VERIFICATION PROGRAM

Name_____

Company_____

Address_____

City_____ Zone____ State____

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

Mass., Quincy—HOUSING—BA 6/9—City Housing Authority, 9 Bicknell St., Housing for the Elderly, Shed and Yardarm Sts., SHAP 667-1. $400,000. Plans deposit $100. D'Orsi & Co., 184 Boylston St., Boston, archts. CD 5/7, under LB.

▲ Conn., New Britain—SCHOOL—BA 6/17—Town of New Britain, School Bldg Comn., High St., New Britain, Slade (North) Junior High School, Steele Rd. $2,000,000. Plans deposit $60. Willard Wilkins, 945 Asylum Ave., Hartford, archt.. Henri B. Van Zelm & Assocs., 1007 Farmington Ave., West Hartford, engrs. CD 12/10.

BUILDINGS—SLC

▲ Mass., Boston—OFFICE—Blue Cross & Blue Shield, 38 Chauncy St., soon lets contract office, 127 Federal St. $2,500,000-$3,000,000. Rudolph Anderson, Beckwith & Haible, 11 Beacon St., archts. CD 5/6.

HEAVY CONSTRUCTION—LB & CA

New England Dredge & Dock Co., 60 South Water St., New Haven, Conn. LB $396,300, est. $370,300, dredging channel and basin areas, Sesuit Harbor, Dennis, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids May 13. (Correction-low bidder) CD 5/20, under LB.

▲† Petricca Constr. Co., 534 West St., Pittsfield, Mass., CA $1,379,242, Flood Control Proj. Hoosic River, Unit No. 4, North Adams, CIVENG-30-075-58-9, MASSACHUSETTS. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Apr. 22. CD 4/24, under LB.

Fruin Colnon Constr. Co. and C. & C. Contr. Corp., 360 Workop St., Warren, Mich., CA $2,359,428 Alternate B. Est. $2,500,000, Contr. 43, reservoir addn., alterations at Provin Mountain, Agawam, SPRINGFIELD, MASS. City, Bd. Water Comrs., City Hall, Springfield, Mass. Bids Apr. 15. CD 4/18, under LB.

BUILDINGS—LB & CA

▲ Franchi Constr. Co., Inc., 216 Webster St., West Newton, Mass. CA $2,325,148 constr. 1 story mezzanine part 6 story bldg. approx. 134,580 sq. ft. floor area etc. U. S. POST OFFICE and COURTHOUSE, (lease-purchase proj.) Elwood Ave., Pearl and George Sts. BURLINGTON, VT. General Services Admin. P. Bldg. Service, F St. between 18th and 19th Sts. N. W., Wash. 25, D. C. Bids Apr. 4. CD 4/8, under LB.

Fred J. Smith, Division St., Derby, Conn., CA $365,000, SUPERMARKET, DERBY, CONN. Stop & Shop, Inc. 393 D St., Boston, Mass. Bids Apr. 24, awarded May 14, CD 4/24.

Bari-Lavoie Co., Main St., Farmington, Conn., CA $500,000, 4 story, 60 x 128 ft. penthouse, rein.-con. brick and panel ext. with aluminum frames, 40-suites, laboratory facilities, MEDICAL BLDG., "Woodland Medical Center", 140 Woodland St., HARTFORD, CONN. Samuel I. Ward, et al c/o M. J. Neiditz & Co., Inc., 37 Lewis St., Hartford, Conn. Awarded May 21, CD 4/2.

▲ Wadhams & May Co., 15 Lewis St., Hartford, Conn., CA $1,500,000, INFIRMARY, 3 story main bldg. and 2 wings, red brick, limestone trim, AUDITORIUM, 2 CHAPELS, Steele Rd., "Mercyknoll", WEST HARTFORD, CONN. Order Sisters of Mercy, Steele Rd., West Hartford, Conn. Awarded May 20, CD 6/7/56.

▲ T. Robert Burnham, 33 Woodland Ave., Bloomfield, Conn., CA Approx. $1,189,300, 70 HOUSES "Long Vue Acres", Elmfield St., WEST HARTFORD, CONN. Suburban Development Corp., 29 Fowler Dr., West Hartford, Conn. George P. Jenkins, c/o owner, engr. Awarded May 20, CD 5/7.

Henry & Gerety, 698 Old Post Rd., Fairfield, Conn., CA Approx. $345,000, 100 x 150 ft. BOWLING ALLEY, "Westport Lanes" Post Rd., WESTPORT, CONN. Backiel, Inc., Old Post Rd., Westport, Conn. CD 3/18.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

† N. Y., Rome—ELECTRONIC FIELD STATIONS, etc. —BA 6/17 (tentative)—U. S. Eng., 111 E. 16th St., New York, Zone 3, electronic field stations (FY 1957) receiver bldg., Stockbridge, N. Y. and transmitter bldg., Ava, N. Y., Griffiss Air Force Base, Serial No. ENG-30-075-58-84. $700,000-$800,000. Plans deposit $35. CD 2/26, under LB.

† N. Y., Plattsburgh—READINESS CREW BLDG—BA 6/19 (tentative)—U. S. Eng., 111 E. 16th St., New York, Zone 3, readiness crew bldg. at Plattsburgh Air Force Base, Serial No. ENG-30-075-58-296. $900,000-$1,100,000. Plans deposit $100. CD 4/30.

† N. Y., Rome—READINESS CREW BLDG.—BA 6/19 (tentative)—U. S. Eng., 111 E. 16th St., New York, Zone 3, readiness crew bldg. at Griffiss Air Force Base, Serial No. ENG-30-075-58-293. $500,000-$700,000. Plans deposit $100. CD 9/17.

▲ N. Y., Idlewild—PAVING AND UTILITIES—BA 6/24—Port of New York Authority, 111 8th Ave., New York, Zone 11, paving and utilities for Runway "V" and Inland Taxiways at New York International Airport, Contr. NYA-920.003. Plans deposit $50. CD 9/20.

BUILDINGS—BA

† N. Y., Brooklyn—CARGO DOORS—BA 6/17 (tentative)—U. S. Eng., 111 E. 16th St., New York, Zone 3, replacement of cargo doors, Pier Sheds No. 3 and 4 at Brooklyn Army Terminal, Serial No. ENG-30-075-58-288. $500,000-$1,000,000. CD 9/17.

† N. Y., Syracuse—TRAINING CENTER—BA 6/17 (tentative)—U. S. Eng., 111 E. 16th St., New York, Zone 3, U.S.A.R. Training Center, Serial No. ENG-30-075-58-301. $500,000-$750,000. Plans deposit $25.

▲† N. Y., West Point—CADET BARRACKS—BA 6/24 (tentative)—U. S. Eng., 111 E. 16th St., New York, Zone 3, conversion of West Academic Bldg. to Cadet Barracks at U. S. Military Academy, Serial No. ENG-30-075-58-307. $1,000,000-$1,500,000. Plans deposit $20. CD 9/16.

HEAVY CONSTRUCTION—LB & CA

Woodward Governor Co., 5001 N. 2nd, Rockford, Ill. LB $730,350, thirteen hydraulic turbine governors in Lewiston Power House, Niagara Project, NP 9, NEW YORK. Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. CD 8/15.

BUILDINGS—LB & CA

▲ P. J. Carlin Constr. Co., 41-17 Crescent St., Long Island City 1, N. Y. LB $2,197,250 (21 bidders), general contract OFFICE of Chief Medical Examiner on northeast corner of 1st Ave. and E. 30th St., Manhattan Boro, NEW YORK, N. Y. Dpt. P. Wks., Municipal Bldg., New York, Zone 7, N. Y. Bids May 21. CD 4/22;

Joseph F. Egan, 3013 Grand Concourse, New York 58, N. Y. LB $393,000 (13 bidders), plumbing work. (New York, N. Y.);

Heating Maintenance Corp., 220 E. 138th St., New York 51, N. Y. LB $735,851 (13 bidders), heating and ventilating (New York, N. Y.);

Davidson Elec. Co. Inc., 1265 Atlantic Ave., Brooklyn 16, N. Y. LB $359,315 (16 bidders) electrical work (New York, N. Y.).

▲ Joseph Lupowitz & Sons, 7340 York Rd., Melrose Park, Pa. Separate Contracts. $4,500,000 RESIDENTIAL DEVELOPMENT, (283) Five Points Rd., etc. BERWYN, PA.

Eugene R. Crown Builders, 1411 City Line Ave., Phila., Pa. Separate Contracts. $500,000, 28 RESIDENTIAL DEVELOPMENT, Lawrence Rd., etc. BROOMALL, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Valley Forge Builders, Inc., Downingtown, Pa. Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT Chestnut St., etc., DOWNINGTOWN, PA.

Rumford Constr. Co., 113 E. 8th St., Chester, Pa. CA $919,846 general constr. SENIOR HIGH SCHOOL addns., alterations for Ridley Twp. School Dist., FOLSOM, PA. Pa. P. School Bldg. Auth., 101 S. 25th St., Harrisburg, Pa. Bids Apr. 15, CD 4/21, under LB.

Eugene R. Crown Builders, 1411 City Line Ave., Phila., Pa. Separate Contracts. $600,000, RESIDENTIAL DEVELOPMENT, (15) Sprague Rd., etc. GLADWYNNE, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Stan Seiple, Inc., 809 N. 7th St., Sunbury, Pa. CA $514,673 general constr. men's DORMITORY at Lock Haven State Teachers College, LOCK HAVEN, PA. General State Auth., 18th and Herr Sts., Harrisburg, Pa. Bids Apr. 30. CD 5/7, under LB.

Eugene R. Crown, Builders, 1411 City Line Ave., Phila., Pa. Separate Contracts. $344,000 RESIDENTIAL DEVELOPMENT, Woodbine Ave., MERION, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Eugene R. Crown, Builders, 1411 City Line Ave., Phila., Pa. Separate Contracts. $440,000. RESIDENTIAL DEVELOPMENT, Erlington Rd., etc., PENN WYNNE, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Stoffel & Tillotson, 2043 Eastburn Ave., Phila., Pa. LB $697,400 general contract Hillcreek HOUSING addn., Rising Sun and Adams Aves., PHILA., PA. Phila. Housing Auth., 42 S. 15th St., Phila., Pa. Bids May 13. CD 5/14.

Morris Hankey, Berwick, Pa. CA $350,000 BOWLING CENTER, QUAKERTOWN, PA. Kenneth Freed, Quakertown, Pa.

C. William Huber, 18 S. Olwe St., Media, Pa. Separate Contracts. $350,000 RESIDENTIAL DEVELOPMENT, Clinton Rd., etc. UPPER DARBY, PA.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**
PROPOSED WORK	
Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

† Fla., Jacksonville—AIR STATION IMPRVS.—BA 6/19 —Dist. P. Wks. Office, 6th Naval Dist., Bldg. 13, Charleston, S. C., air-conditioning for Operations Bldg. RATCC installation, duct work, etc., Naval Air Station, Cecil Field, NBy 13156, Spec. 13156/57. CD 9/17.

HEAVY CONSTRUCTION—LB & CA

† VIRGINIA—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington. Bids opened 5/15.

Va.—Adams Constr. Co., Box 60, Roanoke, Va. LB $250,483. (6 bidders) Alternate A Proj. 1F8-G15 paving and other work from US 60 to Va. State Rte 130, Blue Ridge Parkway. CD 4/28;

Va.—John A. Hall & Co., Box 298, Roanoke, Va. LB $241,942 Alt. B. same project (Virginia).

City, City Hall, Morgantown, W. Va., rejected bids May 13, Decker's Creek Interceptor Sewer, MORGANTOWN, W. VA., LB $798,840. CD 4/18.

† Godwin Bldg. Corp., Warsaw, N. C., LB $305,000 Group Supply Warehouse, 400 x 120 x 40 x 26 ft. concr. footings and fdns. and utility storage bldg. and group inflammable storage bldg., Marine Corps Air Station, NBy 15175, Spec. 15175, CHERRY POINT, N. C. Dist. P. Wks. Office, Fifth Naval Dist., Bldg. N.-26, U. S. Naval Base, Norfolk, Va. Bids May 20. CD 4/30.

† Dist. P. Wks. Office, Sixth Naval Distr., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., cancelled bids to have been opened June 17. (2nd increment) constr. BOQ, U. S. Naval Air station, Cecil Field, NBy 10257, Spec. 10257/58, JACKSONVILLE, FLA. Approx. $250,000-$500,000. CD 5/13.

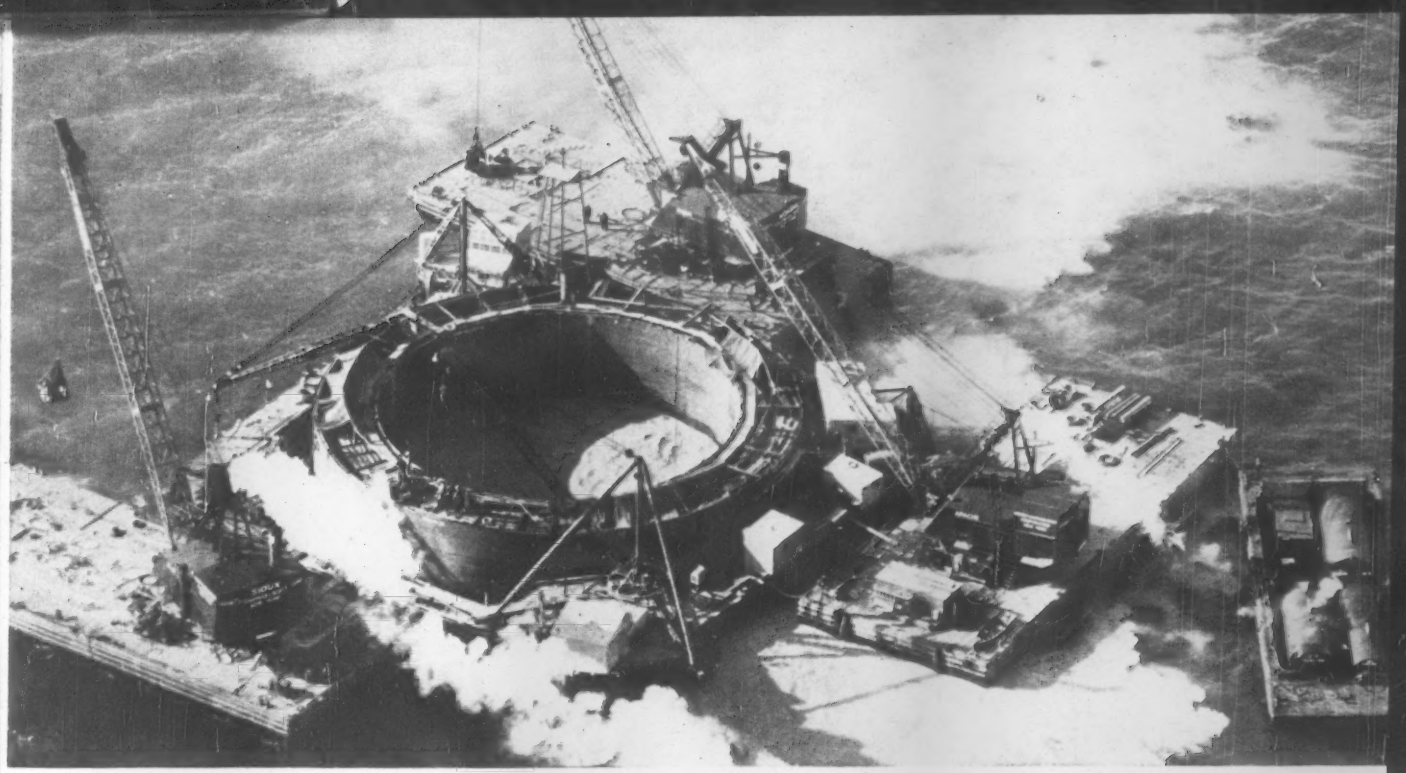
G. W. Hallmark & Sons, 3212-6th Ave., South, Birmingham, Ala., LB $924,616, est. $1,100,000, air-condition courthouse and other alterations, BIRMINGHAM, ALA., Jefferson County Comn., Courthouse, Birmingham, Ala. Charles McCauley, Jackson Bldg., Birmingham, Ala., archt. CD 4/24.

BUILDINGS—LB & CA

▲† Tuckman-Barbee Constr. Co., Inc., 6230 3 St. N.W., Wash., D. C., CA $1,006,000. HEADQUARTERS SQUADRON BLDG. and LABORATORY in Fairfax Co., approx. 3 mi. south of Alexandria at intersection of Telegraph Rd. and Kings Hy. Hybla Valley, ENG-49-080-58-40, VIRGINIA. U. S. Eng., 1st and Douglas Sts. N.W., Wash., D. C. Bids May 13, awarded May 20. CD 5/16, under LB.

† Kuhn Constr. Co., Kanawha Valley Bldg., Charleston, W. Va., CA $586,200, constr. U. S. BUREAU of

Continued on page 94



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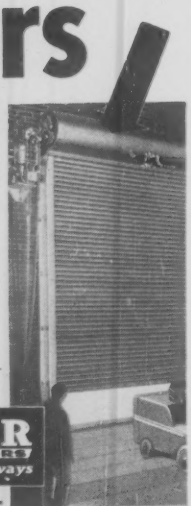

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(Continued from page 92)

MINES BLDG. (lease-purchase), MOUNT HOPE, W. VA. General Services Admin., 19th and F Sts. N.W., Wash., D. C. Bids Apr. 10, rejected. CD 4/16, under LB.

MIDDLE WEST

BUILDINGS—BA

▲ O., Akron—JUVENILE COURT CENTER IMPRVS.—BA 6/19—Comrs. Summit Co., Court House, Juvenile Court Center, Detention Home, Dan St., $1,500,000. CD 6/14.

Wis., Milwaukee—SCHOOL—BA 6/19—Bd. School Directors, 1111 N. 10 St., Zone 3, Walt Whitman Elementary School, S. 54 St. and W. Leroy Ave., $500,000, Plans deposit $100, W. M. Meyer & Assocs., 424 E. Wells St., Zone 2, archts. CD 12/11.

HEAVY CONSTRUCTION—LB & CA

▲† George W. Timmons, 780 West Lane Ave., Columbus, O., CA $2,914,767, constr. 100-bed hospital Lockbourne Air Force Base, ENG-46-022-58-9, COLUMBUS, O. U. S. Eng. Dist., Huntington, W. Va. Bids Apr. 22. CD 4/25, under LB.

H. D. Tousley Co., Inc., 925 E. St. Clair St., Indianapolis, Ind. CA $777,358, (4 bidders) 3,100 ft. dam for reservoir, 47 ft. high with lake covering 16 sq. mi. in Perry Twp., southeast of MUNCIE, IND. Muncie Water Works Co., Muncie, Ind. Bids Apr. 29, awarded May 14. CD 4/11.

H. H. Hall Constr. Co., 211 S. 15 St., East St. Louis, Ill. LB $299,600, re-dredging Proj. No. 11 (Cahokia Ditch) in Madison County from Horse Shoe Lake control works to existing pipe culvert outlet south of T., St. L. & W.* R.R., EAST ST. LOUIS, ILL. East Side Levee & Sanitary Dist. Bd. Trustees, Dan E. Costello, pres., 2642 McCasland Ave., East St. Louis, Ill. Bids May 14. CD 4/15.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison, Bids opened 5/20.

Wis.—L. G. Arnold, Inc., 201½ N. Dewey St., Eau Claire, Wis. LB $477,046, (3 bidders), grade, subbase and Structures B-17056 and B-17-40, 1.468 *mi. Hudson-Eau Claire* (S.T.H. 25 road, Cedar River Bridge Section), and (North Menomonie Railroad Underpass) Road, Interstate Hy. 94, Contr. 1, Projs. K-94-1 (18) 42 and IG-94-1 (1942), Dunn Co.; LB $216,174, (7 bidders), base and concrete paving, Losey Blvd., City of La Crosse (Ward Ave. to State Road), Contr. 1, Proj. U-08-3 (38) La Crosse Co.;

Wis.—Speedway Constr. Co., 6001 N. 91 St., Milwaukee, Wis. LB $351,787, (5 bidders), base and b. conc. 5.027 mi. Prospect-Waukesha Road, C.T. Hy. Y, Contr. 1, Proj. S 0355 (1), Waukesha Co.; LB $892,163, (9 bidders), base, Structure B-40-69, and concrete pavement 0.546 mi. West North Ave. (Chicago and North Western Railway Underpass and approaches) and West North Ave. (116th St. to 114th St.) City of Wauwatosa, Contr. 1, Projs. USG 0821 (5) and U.S. 0821 (7), Milwaukee Co.;

Wis.—Bossell, Van Vechten & Chapman, Baraboo, Wis. LB $473,941, (6 bidders), subbase, base and Structure B-31-8, 10.628 mi. Dykesville-North County Line, and South County Line-Brussels Roads, S.T. Hy. 57, Contr. 1, Projs. F 03-3 (11), Kewaunee and Door Counties; LB $491,726, (7 bidders), subbase, base and Structures B-44-22 and B-41-23, 2.309 mi. South County Line-U.S.H. 10 Road, U.S. Hy. 41, Contr. 1, Proj. F 03-2 (46), Outagamie Co.;

Wis.—J. R. Griffith Co., 1500 9 St., Racine, Wis. LB $1,305,291, (9 bidders), base, concrete pavement and Structures B-28-16, 17, 18, 19, 20 and 21, 3.655 mi. Madison-Milwaukee (Johnson Creek Interchange) and Johnson Creek-Watertown Roads, Interstate Hy. 94 and S.T. Hy. 26, Contr. 1, Projs. I-94-3 (5) 264 and F 0101 (18), Jefferson Co.;

Wis.—O'Keefe Constr. Co., De Pere, Wis. LB $512,146, (9 bidders), subbase, base and Structure C-66-20, 5.289 mi. Barton-Kewaskum Road, U.S. Hy. 45, Contr. 1, Proj. F 027-1 (14), Washington Co.;

Wis.—James Peterson & Sons & Kluck, Medford, Wis., LB $393,023, (4 bidders), subbase, base and single aggregate bit. surf. 11.21 mi. Cedar Lake-U.S.H. 8 and Poskin-Barron Roads, U.S. Hys. 63 and 8, Contr. 1, Proj. F 011-1(34) and A.F.E. 3-831, Polk and Barron Counties;

Wis.—Baumgardt Constr. Co., Dodgeville, Wis., LB $332,267, (1 bidder), base course 9.725 mi. Hudson-Eau Claire (Woodville-Knapp Section) Road, Interstate Hy. 94, Contrs. 1 and 2 (Combination), Proj. 1 103-4(15), St. Croix and Dunn Counties. CD 5/2.

BUILDINGS—LB & CA

▲ Ajax Constr. Co., 6319 Wiethe Ave., Cincinnati, O., CA $1,546,121 (8 bidders) constr. St. Xavier HIGH SCHOOL, CINCINNATI, O. St. Xavier High School, 635 Sycamore, Cincinnati, O. Bids May 15. CD 5/5.

Atkinson & Sons, 2505 N. Sixth St., Columbus, O., CA $983,500 general and electrical contract, Johnson Park JUNIOR HIGH SCHOOL, 1130 Waverly Ave., COLUMBUS, O. Columbus Bd. Educ., 270 E. State St., Columbus, O. Bids May 15, awarded May 20. CD 4/29.

American Constr. Co., 1400 E. Dorothy Lane, Dayton, O., Owner Builds, $850,000, 73 brick HOMES in Russet Park Plat, on both sides of Woodbine Ave. DAYTON, O.

▲ Baker-Coombs Constr. Co., 601 E. Broadway Ave., Morgantown, W. Va., LB general contract new wing for Holzer HOSPITAL, GALLIPOLIS, O. Holzer Hospital, Wayne B. Foster, admin., Gallipolis, O. Total est. $1,000,000. CD 9/5/55;
A. J. Stockmeister, Jackson, O., LB plumbing contract for hospital wing, (Gallipolis, O.);
Schoolfield-Harvey Co., 505 Brooks, Charleston, W. Va., LB electrical contract for new hospital wing, (Gallipolis, O.).

▲ Holmes Constr. Co., Wooster, O., CA Over $2,000,000, PLANT foundation, mainly excavations and sewers, Buttweld pipe mill, LORAIN, O. National Tube Div. of U. S. Steel Corp., E. 28th and Pearl Ave., Lorain, O. CD 5/1/56.

▲ J. H. Butt Co., Chillicothe, O. CA Est. $2,000,000. 100,000 sq. ft. SHOPPING CENTER, 880-car parking, Miamisburg Plaza,* E. Central Ave. at east edge of MIAMISBURG, O. Dybvig & Frydaman Realtors, Commercial Bldg., Dayton, O.

Fred W. Entenman, Inc., 3323 Secor Rd., Toledo, O. CA general contract 1 story, glass-curtain wall constr., 50,000 sq. ft. DISTRIBUTION WAREHOUSE and OFFICE BLDG., loading for 10 trucks. TOLEDO, O. Pittsburgh Plate Glass Co., 2410 Albion St., Toledo, O. Total est. $500,000. Sanborn, Steketee & Assocs., Otis and Evans, 1214 Cherry St., Toledo, O. archts.-engrs. CD 4/4/57.
Roger Electric Service, Inc., 527 Conrad, Toledo O. CA electrical contract, warehouse and office bldg. (Youngstown, O.).

Wermuth, Inc., 1036 St. Marys, Fort Wayne, Ind., CA $352,075, 92-students, MEN'S DORMITORY, YELLOW SPRINGS, O. Bd. Trustees Antioch College, Yellow Springs, O. Awarded May 15. CD 3/29/56.

▲ Heller-Murray Co., 222 W. Rayen Ave., Youngstown, O., CA general contract SCIENCE BLDG., 3 story, bsmnt., brick with stone trim, for classrooms and laboratories, Youngstown University, YOUNGSTOWN, O. Bd. Trustees Youngstown University, 410 Wick St., Youngstown, O. Total est. $1,000,000. Kling & Frost, 661 Wick Ave., Youngstown, O., archts. Bids May 8. Awarded May 13. CD 4/30/58.
A. F. Bell Electric, Inc., 381 Arlington, St., Youngstown, O. CA electrical contract for science bldg. (Youngstown, O.).
C. J. Little & Son Co., 236 N. Phelps, Youngstown, O. CA plumbing contract, science bldg. (Youngstown, O.).

▲ Lebrato Bros., Inc., 7708 Bluffton Rd., Fort Wayne, Ind., Owner Builds, $7,000,000, 500 HOMES called Avalon, on Lower Huntington Rd., between Stellhorn and Bluffton Rds., FORT WAYNE, IND.

Hagerman Constr. Co., Strauss Bldg., Fort Wayne, Ind., CA general contract main level and lower level, glass, brick and copper facing Henry Moellering Memorial LIBRARY, with 3 story stack area, on East Campus, VALPARAISO, IND. Trustees Valparaiso University, Valparaiso, Ind. Total est. $650,000 (9 bidders). Bids May 2, awarded May 14. CD 4/3.
Valparaiso Plumbing Co., Valparaiso, Ind., CA plumbing and heating (Valparaiso, Ind.);
Van Ness Electric Co., Valparaiso, Ind., CA electrical work (Valparaiso, Ind.).

E. Zari & Son, 6645 Simpson St., Morton Grove, Ill. CA $350,000, 2 APARTMENT BLDGS., 35 units, 5240 Oakton St., SKOKIE, ILL. United Enterprises Inc., 9045 N. Keeler Ave., Skokie, Ill. CD 2/26.

WEST OF MISSISSIPPI

BUILDINGS—BA

Kan., Hill City—COURT HOUSE—BA 6/25—Comrs. Graham Co., Court House, 20,000 sq. ft. air-conditioned court house. $365,000. Mann & Co., 201 E. 1st St., Hutchinson, archts.-engrs. CD 4/8.

† Iowa, Ames—LABORATORY, etc.—BA 7/10—Dpt. Agriculture, 14 St. and Independence Ave. S.W., Wash. 25; D. C., 2 story, bsmnt., concrete fdns. and concrete and masonry administration bldg., 1 story, bsmnt. small animal laboratory bldg., three 1 story and part bsmnt. large animal laboratory bldgs., 1 story change house bldg., waste treatment plant, boiler house and thirty 1 story field bldgs. Plans deposit $75. CD 1/4/57.

HEAVY CONSTRUCTION—LB & CA

▲ Foley Bros. Inc., New York Bldg., St. Paul, Minn., LB $1,110,948 (1 bidder), constr. bridge over Rainy River between Baudette, Minn. and Rainy River, Ontario, Canada, MINNESOTA and ONTARIO. Village of Baudette, I. G. Lyons, clk., Village Hall, Baudette, Minn. Bids May 20. CD 4/25.

† R. O. Davis, Inc., 220 Prather Lane, Austin, Tex., CA $776,929, est. $985,180, hydrant fueling system, Blytheville Air Force Base, ENG-03-050-58-41, BLYTHEVILLE, ARK., U. S. Eng., P. O. Box 867, Little Rock, Ark. CD 5/16, under LB.

▲† Peter Kiewit Sons Co., 1024 Omaha National Bank Bldg., Omaha, Neb., CA $5,847,306, est. $5,965,611, runway primary, instrument and apron operational, Blytheville Air Force Base, ENG-03-050-58-40, BLYTHEVILLE, ARK. CD 5/9, under LB.

† Martin K. Eby Constr. Co., 610 N. Main, Wichita, Kan., LB $575,300, est. $614,088 (3 bidders), Ordnance Storage, incl. Security Gate House, Base Spares, Suerveillance and Inspection Shop, Multi-Cubical Magazines, outside utilities, parkings, etc. Forbes Air Force Base, ENG-23-028-58-57, TOPEKA, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids May 20. CD 4/17.

▲ COLORADO—State Hy. Dpt., 4201 E. Arkansas, Denver,
Colo.—Schmidt Constr. Co., 8150 West 49th Ave., Denver, Colo., CA $684,549, est. $642,000 plant mix surfacing, 6.443 mi. Colo. Proj. No. F-018-1 (11), Meeker, Rio Blanco Co. Awarded May 20, Bids May 20;

(Continued on page 96)

THE NEW LE ROI ROTARY 365

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Delivers rated capacity at 1100 rpm —slowest speed rotary on the market!

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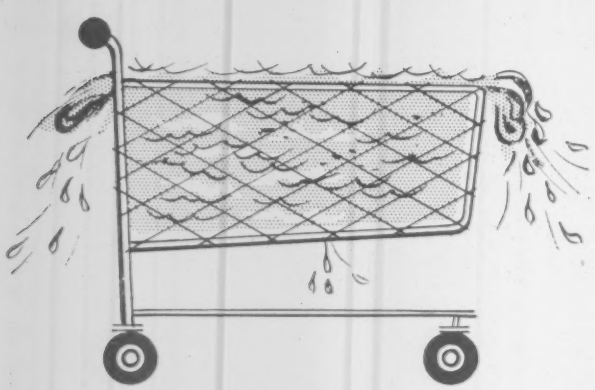

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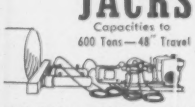

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Continued from page 94

Colo.—Siegrist Constr. Co., 7000 York St., Denver, Colo., CA $465,555, est. $456,000, asphaltic surfacing 3.223 mi. located on State Hy. No. 6, Montrose, Montrose Co. Bids May 20. CD 5/12.

BUILDINGS—LB & CA

▲ O. A. Stocke & Co., Rochester, Minn., CA $1,046,700, general contract CONTINUED TREATMENT BLDG at Rochester State Hospital, ROCHESTER, MINN. State Dpt. Admin., A. O. Vessey, dir. Procurement, 19 State Capitol, St. Paul, Minn. Bids May 15. CD 5/21, under LB.

William S. Moore, 7030 Washington Ave., University City 5, Mo., CA Est. $350,000, 1 story, bsmnt., 130 x 160 ft. SUPERMARKET, Kirkwood Rd. and West Washington St., KIRKWOOD (St. Louis 22 P. O.), MO. Great Atlantic & Pacific Tea Co., 1625 South Grand Blvd., St. Louis 4, Mo.

▲ Fruin-Colnon Contg. Co., 1706 Olive St., St. Louis 3, Mo., CA Est. $1,000,000, general contract 2 story, 142 x 300 ft. masonry, steel, concrete, etc. PLANT ADMINISTRATION OFFICE, northside US 68 west of Rudder Rd., ST. LOUIS, COUNTY, MO. Chrysler Corp., H. G. Siegel, purch. agt., 341 Massachusetts Ave., Highland Park, Detroit 3, Mich. Bids May 6. CD 5/1.

The Baldwin Co., 322 Gaines St., Little Rock, Ark., CA $381,780, ELEMENTARY SCHOOL, SENIOR HIGH SCHOOL and ADMINISTRATION BLDG., WALNUT RIDGE, ARK., Walnut Ridge School Dist., J. L. Blend, Bd. Chn., Walnut Ridge, Ark. Erhart, Eichenbaum Rauch & Blass, 201 Chester St., Little Rock, Ark., archts. Bids May 7.

▲† Centex Constr. Co., 4606 Greenville Ave., Dallas, Tex., CA $7,470,263, Capehart HOUSING, at McConnell Air Force Base, WICHITA, KAN. U. S. Eng., Federal Office Bldg., Kansas City, Mo. Bids Mar. 12. CD 2/20.

▲ Centex Constr. Co. 4606 Greenville, Dallas, Tex. Owner Builds. $377,750, 32 DWELLINGS, $368,550 27 DWELLINGS, $371,000, 34 DWELLINGS in Johnson Park, DALLAS, TEX. Grand total $1,117,300. CD 5/14.

John J. Stokes Constr. Co., Box 691, San Marcos, Tex. LB $365,653, 40 unit HOUSING, KENNEDY, TEX. Kenedy Housing Auth., Kenedy, Tex. Bids May 7. CD 4/3.

Goliad Bowling Center, c/o Joe Barshop & Assocs., 1500 S. Zarzamora, San Antonio, Tex. Owner Builds. $500,000, BOWLING ALLEY, Goliad and Blackwood Sts. in Highland Hills, SAN ANTONIO, TEX. CD 5/12.

FAR WEST

HEAVY CONSTRUCTION—BA

† Wash., Blaine—HOUSING—BA 6/12—Procurement Officer, Blaine Air Force Base, constr. 18 unit family housing, at Blaine Air Force Station, Inv. 58-97. Plans deposit $50.

† Wash., Othello—HOUSING—BA On Or About 6/13—Base Procurement Office, 84th Fighter Group, Geiger Field, Spokane, 18 units family housing, site development, etc. Plans deposit $50.

▲† Wash., Fort Lawton—OPERATIONS CENTER—BA 6/17—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 1 story, 175 x 183 ft. rein.-con. operations center, auxiliary structures and 4 radar towers, for Missile Base, $3,000,000. CD 1/15/52.

BUILDINGS—BA

Utah, Salt Lake City—SCHOOL—BA 6/17—Granite School Dist., Elmer J. Hartvigson, supt., 3212 S. State St., David Gourley Elementary School. $500,000. Extended date. Bruce J. McDermott, 366 S. 5th E., archt. CD 5/15.

BUILDINGS—SLC

▲ Calif., Menlo Park—GEOLOGICAL SURVEY—General Services Admin., 49-4th St., San Francisco, soon lets contract, 2 story, 80,000 sq. ft. rein.-con. U. S. Geological survey bldg. $1,226,000. Loubet & Glynn, 400 Montgomery St., San Francisco, archts. CD 10/11.

Utah, Salt Lake City—BOWLING PALACE—McCullough Investment Co., R. Vern McCullough, pres., Dooly Bldg., soon lets contract "Classic Bowl" bowling palace 40 lanes to be built at 2265 S. State. $600,000. M. Keith Richardson, 603 Dooly Bldg., archt. CD 4/8.

▲ Utah, Salt Lake City—HOSPITAL—St. Marks Hospital, 2nd W. 7th N., soon lets contract 5 story addn. to St. Mark's Hospital Wing. $1,000,000. Snedaker, Budd & Assoc., 200 American Bldg., archts. CD 7/12/56.

HEAVY CONSTRUCTION—LB & CA

▲† M. H. Hastler, Box 37, Oakview, Calif. LB $1,104,140; earthwork (1st stage) and exten. drainage in borrow Area A and placing excavated material in dam embankment, Willard Dam, Weber Basin Proj. Spec. DC 5032 UTAH. Bureau Reclamation Dpt. Interior, Ogden, Utah. Bids May 21. CD 5/6.

OREGON—Oregon State Hy. Comn., Highway Bldg., Salem,

Hansen & Parr, W 315 Boone St., Spokane, Wash., and Morrison-Knudsen Co., 319 Broadway Ave., Boise, Idaho, CA $952,650, 968 ft. twin bridges over Snake River at Ontario, Proj. FAP 1-302 (10), Malheur Co. Bids May 9. CD 5/16, under LB.

▲† Earl Parker, Inc., & Harms Bros., Marysville, Calif. CA $1,738,225 modernization in Yosemite National Park, CALIFORNIA. National Park Service, Dpt. Interior, 1000 Geary St., San Francisco, Calif.

▲ Oltmans Constr. Co., 516 Monterey Pass Rd., Monterey, Calif. LB $1,398,000 (6 bidders) constr. Central

Service Yard opposite Griffith Park, LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. Bids May 22. CD 5/12.

Hass & Haynie, 244 Pine St., San Francisco, Calif. CA $975,000 jet overhaul facility at San Francisco International Airport, SAN FRANCISCO, CALIF. United Air Lines, c/o archt., San Francisco, Calif. CD 11/22.

BUILDINGS—LB & CA

Sellen Constr. Co., 228 9 Ave. N., Seattle, Wash., CA $717,492, 1 story, part bsmnt., 38,700 sq. ft. steel frame REHABILITATION CENTER, SEATTLE, WASH. State Dpt. Labor & Industries, Olympia, Wash. Bids May 7. CD 5/15, under LB.

Smith-Campbell Co., 6510 Cherry Ave., Long Beach, Calif. LB $729,000 (8 bidders) Palmos School, Lark Ellen Ave. and Bridge St. (6 bldgs.), COVINA, CALIF. Covina School Dist., 19009 E. Badillo St., Covina, Calif. H. L. Gogerty, 3123 W. 8th St., Los Angeles, Calif., archt. Bids May 19.

Timmins & Thompson, 4016 Rodgers Rd., Spring Valley, Calif. Owner Builds. $529,325 35 stucco DWELLINGS, Joel Lane, Lakeview Dr., Poppy Dr., LA MESA, CALIF.

Seven Hills Ranch Co., 1166 E. 58th St., Los Angeles, Calif. Owner Builds. $424,700, 49 DWELLINGS, Stanton Ave., Forney Dr., Sunset Ave., Mercado Dr., Ashgrove Dr., LA MIRADA, CALIF.

Herziger-Harris Bldg., c/o owner, CA $530,176, fifty-one 1,200 sq. ft. frame DWELLINGS, La Costa St., El Parado St., etc. LEMON GROVE, CALIF. San Altos Co., Box 486, Lemon Grove, Calif.

▲ D&E Corp., 8906 W. Olympic, Beverly Hills, Calif. Owner Builds. $1,134,200, 77 stucco DWELLINGS, MONTEREY PARK, CALIF.

▲† D&L Constr. Co., and J. D. Bradley, Inc., 13238 Sherman Way, North Hollywood, Calif. LB $3,421,300 est. $3,500,000 (8 bidders) joint venture 220 family HOUSING UNITS, Armed Services Housing (Capehart) Mather Air Force Base, ENG-04-612-58-26, SACRAMENTO, CALIF. Base Procurement Office, Bldg. 2554, Maher Air Force Base, Sacramento, Calif. Bids May 22. CD 4/25.

Gallegos Corp., 2120 S. Main St., Santa Ana, Calif. LB $730,414, est. $700,000 (9 bidders) PUBLIC LIBRARY, 8th St. and Van Ness Sts., SANTA ANA, CALIF. City, City Hall, Room 103, Santa Ana, Calif. Bids May 14. CD 3/27.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ ONTARIO—Dpt. Hys., Parliament Bldgs., Toronto, Curran & Briggs, Ltd., 61 Haverson Blvd., Toronto, Ont., CA $1,060,323, (10 bidders) grading, gran. base and structure, Trans-Canada Hy. 17 from 6 mi. south of Michipicoten River to 2 mi. south of Old Women Bay, 7 mi. Contr. 58-24, Michipicoten. Bids May 14, awarded May 20. CD 5/20, under LB.

Gardiner-Wighton Ltd., 8 Milford Ave., Weston, Ont., LB $425,800, (9 bidders) 2 story addn. to animal colony on existing roof, 52 x 61 ft. and 3 story wing, approx. 42 x 120 ft. rein.-con. with brick facing, Laboratory Addns. and Alterations, Defence Research Medical Laboratories, Air Force Base, DOWNSVIEW TORONTO SUBURB ONT. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Gordon S. Adamson & Assocs., 52 St. Clair Ave. E., Toronto, Ont. archts.

BUILDINGS—LB & CA

▲ Piggot Constr. Co. Ltd., Piggot-Bldg., 36 James St., Hamilton, Ont., CA $6,330,000, (4 bidders) CITY HALL, city chamber 10,000 sq. ft. penthouse, 5,000 sq. ft., bsmnt. area 12,000 sq. ft. garage area 22,000 sq. ft., HAMILTON, ONT. City, City Hall, Hamilton, Ont. Bids Apr. 30, CD 5/9, under LB, awarded May 20.

Granite Constr. Ltd., 417 Pelissier St., Windsor, Ont., CA Est. $450,000, 1 story bsmnt. 95 x 140 ft. brick and block walls, 20 yr. bonded built-up roofing COMMUNITY CENTRE, poured concrete fdn. Ouellette Ave., WINDSOR, ONT. Windsor Jewish Community Council, Windsor, Ont. Bids May 9, awarded May 16.

ALASKA

HEAVY CONSTRUCTION—LB & CA

▲ Ramstad Constr. Co., Anchorage, Alaska, LB $1,238,000, est. $1,084,752, (4 bidders), modify radar towers at Cape Newenham and Cape Romanzof, Inv. 58-52, ALASKA, U. S. Eng., Anchorage, Alaska. Bids May 20, CD 5/20.

PROPOSED PROJECTS

WATER SUPPLY

▲ Ind., East Chicago—City, City Hall, WW sys., addn. $1,500,000, Leo Besozzi, 7501 Indianapolis Bldg., Hammond, consult. engr.

▲ Tex., Nocona—North Montague Co. Water Supply Dist., c/o Joe L. Joneway vice pres., water facilities, incl. earthen dam. $1,200,000 Freese & Nichols, 407 Daniger Bldg., Fort Worth, consult. engrs. CD 1/7, under City of Nocona, Tex. as owner.

SEWERS, WASTE DISPOSAL

▲ Conn., Plymouth—Town of Plymouth, Town Hall, Terryville, sewage disposal plants, trunk line sewer, to Eagle St. Terryville, sewers, Riverside Ave., Allen St., Pequabuck; sewers, Plymouth West End., $1,700,000. Gibbs & Hill, Inc., Penna Station, New York N. Y., consult. engr. CD 10/24.

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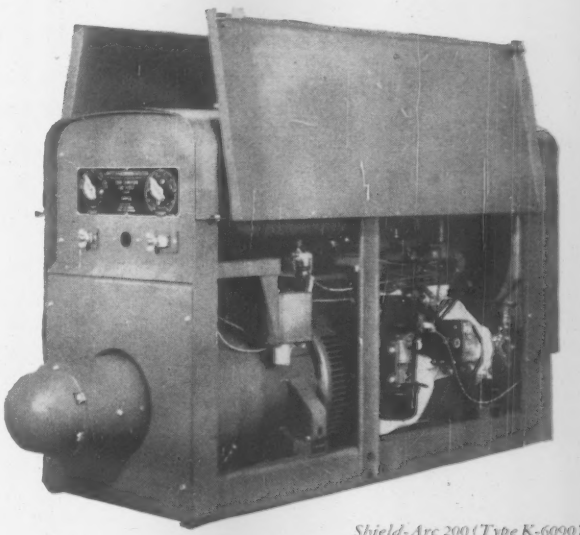

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▲ Conn., Wallingford—Town, Town Hall, sewer trunkline, Yalesville to Wallingford, lateral sewers, $1,500,000; sewage treatment plant, Wallingford, $1,000,000. Bowe, Albertson & Assocs., 110 William St., New York, N. Y., consult. engrs. CD 10/8/56.

▲ Ill., East Moline—City, City Hall, sewage treatment plant, sewers, $1,500,000, Interstate Eng. Co., 601-26th St., Rock Island, consult. engr. CD 10/15/48.

▲ N. J., North Bergen—Twp. of North Bergen, Municipal Bldg., sewage disposal and installation sewer mains in previously undeveloped sections of Twp. $4,000,000. Joshua Muss, Municipal Bldg., engr.

▲ O., Warren—City, City Hall, addn. of sewage lines to serve newly-annexed northwestern area of city, $1,500,000. Havens & Emerson, 640 Leader Bldg., Cleveland, Zone 14, consult. engrs. CD 4/16/44.

▲ Pa., Phila.—Dpt. Procurement, City Hall Annex,
Line No. 186—incinerator in East Central area, $3,175,000, Constr. 1960-61.
Line No. 188—incinerator $3,050,000, Constr. 1963, David M. Smallwood, streets comr. both projects.
storm flood relief—Oregon Ave. relief sewerage sys., $1,360,000.
Wolf St. relief sewerage sys., $1,950,000.
Allegheny Ave. relief sewerage sys. $1,200,000.
Aramingo relief sewerage sys., $3,140,000.
Thomas Run relief sewerage sys., $2,350,000.
Wingohocking relief sewerage sys. exten., $5,490,000.
Rock Run relief sewerage sys., $3,540,000.
Gunners Run relief sewerage sys., $950,000.
Passyunk Ave. relief sewerage sys., $1,980,000, Morris Knowles, Inc., Park Bldg., Pittsburgh, Pa., consult. engr. and Samuel S. Baxter, water comr., on foregoing projects.
incinerator in Far Northeast section, $3,050,000, David N. Smallwood, streets comr.

BRIDGES

▲ WASHINGTON—Washington Toll Bridge Auth., Olympia,
San Juan Co.—causeway between Decatur and Lopez Islands, via Trump Island, with short bridge span, $1,500,000.

STREETS AND ROADS

▲ NORTH CAROLINA—State Hy. Dpt., Raleigh,
Beaufort Co.—resurfacing 4.7 mi. US 264 from Washington toward Bunyan, $105,000.
Burke Co.—resurfacing 15 mi. NC 18—from Morganton to Catawba Co. Line, $340,000.
Cabarrus Co.—resurfacing 6 mi., US 29—northbound lane from Concord to the Rowan Co. line, $126,000.
Cabarrus and Mecklenburg Counties—concrete overlay 17 mi. US 29—southbound lane from Concord to a point north of Charlotte, $1,134,000.
resurfacing 9.8 mi., N.C. 49 from Jackson Training School to US 29 $261,000.
Caldwell Co.—resurfacing 12.5 mi. US 321 from Lenoir toward Blowing Rock, $270,000.
Chatham Co.—resurfacing 13 mi. US 15 and 501 from Pittsboro to Orange Co. line, $285,000.
Chatham and Lee Counties—Paving Project 8.14053—4 mi. US 421 from Deep River toward Gulf, $279,000.
Cherokee Co.—resurfacing 3.8 mi. US 129 from Jct. US 64—to Georgia State Line, $86,000.
resurfacing 20 mi. US 64—from Murphy to Tennessee State Line, $440,000.
Craven Co.—widen Broad St. in New Bern, US 70—and US 17, $198,000.
widen to 4 lanes 6.5 mi. US 17—from New Bern City limits to Jones Co. line, $828,000.
Gaston Co.—6.1 mi., Proj. 8.16339, NC-277 between Dallas and Cherryville, $300,000.
Halifax Co.—resurfacing 6.5 mi. US 158 from Roadoke Rapids West, $140,000.
Hartnett Co.—grading, structures and paving 13.9 mi. US 421, from Lillington West to Lee Co. line, $750,000.
Hertford Co.—wid'n., resurfacing 8.8 mi. US 258 from Meherrin Bridge to Virginia State line, $310,000.
Iredell Co.—resurfacing 10 mi. NC-90, from Statesville to Alexander Co. line, $210,000.
Lincoln and Catawba Counties—resurfacing 7 mi. US 321 from north of Lincolnton to Catawba Co. line, $140,000.
Madison Co.—resurfacing 6.6 mi. US 19 from point 1 mi. northeast of Jct. US 23 to the Yancey Co. line (old Proj. 9701), $170,000.
Martin Co.—widen resurf. 6 mi. US 64, from Pitt Co. to Williamston, $500,000.
McDowell Co.—resurfacing 8.6 mi. from point 1 mi. southeast of Dysartville southeast 8.6 mi. (Old Proj. 8842—US 26, $215,000.
Mecklenburg Co.—2 mi. from Morehead St. to Bypass, NC-27, $350,000.
resurfacing 8 mi. NC 27 from Cabarrus Co. line toward Charlotte, $170,000.
widen, resurface, 7.4 mi. NC 27 from Bradford Dr. west of Charlotte to Catawba River, $180,000.
Montgomery Co.—paving proj. 8.15580, 8.4 mi. NC 27 from Pee Dee River toward Twp. Reidsville northeast, $405,000.
Nash Co.—resurfacing 3.2 mi. US 64 relocation for US 231 to Spring Hope, $70,000.
New Hanover Co.—widen to 4 lanes 1.5 mi. US 421 from Kentucky Ave. south to Shipyard Rd., US 421, $400,000.
Northampton Co.—resurfacing 9 mi. US 301 from Weldon to Virginia State line, $200,000.
Onslow Co.—widen to 4 lanes 3.5 mi. US 17 from US 258 to Sabiston Crossroads, $351,000.
Pitt Co.—widen, resurface 6 mi. US 64 from Edgecombe Co. line to Martin Co. line, $200,000.
widen to 4 lanes 1.9 mi. NC 11, from junction US 264A to junction US 264, $414,000.
Randolph Co.—resurfacing 12 mi. US 220 from Seagrove to Asheboro, $260,000.
Richmond Co.—resurfacing 5 mi. US 74 from Hamlet to Scotland Co. line, $120,000.
Rockingham Co.—Paving Proj. 8.15890, 11.2 mi. NC 14 from Reidsville northeast, $549,000.
Rowan Co.—resurfacing US 29 and NC 150 from Heilig Ave. to Council St. in Salisbury, $75,000.
resurfacing 14.8 mi. US 52 from Salisbury to Cabarrus Co. line $335,000.
Rutherford Co.—resurfacing 4 mi. NC 26 from Sunshine Rd. to Cleveland Co. line $100,000.
Transylvania Co.—county road near Brevard Bridge No. 30 over French Broad River, $50,000.
Wake Co.—resurfacing 4.4 mi. county road from Morrisville to Airport, $100,000.
Watauga Co.—resurfacing 7 mi. US 421 from NC 603 to Boone $143,000.
Wayne Co.—4 lanes, from US 70A to Seymour Johnson Field, $108,000.
Wilkes Co.—resurfacing US 421 from Curtis Bridge west 10.8 mi., $265,000.

▲ Va., Arlington—Arlington County Bd., Courthouse, voted bonds May 13, street constr. $1,790,000; curb and gutter $330,000. CD 4/11.

† WASHINGTON—U.S. Forest Service, 729 N.E. Oregon St., Portland, Ore.,
Clallam Co.—8 mi. road into Dungeness area, $400,000. Work to begin this summer.

EARTHWORK, WATERWAYS

▲ Idaho—Northern Lights, Inc., Sandpoint, earth and rockfill dam with 4,250-kw power plant on Priest River below Priest Lake, $1,360,800.

▲ Washington—Washington Public Power Supply System, Kennewick, hydro dam at outlet of Packwood Lake, $5,000,000. CD 10/10/50.

LATIN AMERICA

▲ Haiti, Trinidad—UNIVERSITY—University of Haiti, Port Au Prince, plans by McKissack & McKissack, 810 18th Ave. N., Nashville, Tenn., U.S.A., 15 units, campus. $3,000,000.

▲ Honduras—Minister & Economy & Finance, Government of Honduras, Tegucigalpa, plans constr. new paved highway to connect Puerto Cortes with national road network; imprvt. of Western and Southern Hys., $10,500,000.

FOREIGN

▲ Iraq, Iwadhiya—HOSPITAL—Development Bd. of Iraq, Baghdad, plans children's hospital, $3,217,000.

▲ Nigeria—RAIL SYSTEM—Nigerian Railway Corp., plans modernization and development of rail system, incl. new line about 400 mi. long from Kuru on Jos Plateau through Bauchi and Bornu provinces to Maiduguri and frontier of French Equatorial Africa, $116,000,000.

PUBLIC BUILDINGS

▲ Ark., Little Rock—DORMITORIES—St. Vincents Infirmary, c/o Sister Margaret V. Blanford, admin., dormitory for 198 women and facilities for 15 faculty members, Ark.-3-CH-28H, $1,300,000.

▲ Calif., Santa Cruz—SCHOOL—Santa Cruz City High School Dist., c/o Supt., 133 Mission Dist., defeated bonds Apr. 29, Mid-County High School, near Soquel, $2,725,000. John Lyon Reid & Partners, 1019 Market St., San Francisco, archts. CD 4/21.

▲ Calif., Torrance—SCHOOL BLDGS.—Torrance Unif. School Dist., 2335 Plaza del Amo, plans by Roy Donley, 8320 Melrose Ave., Los Angeles, new bldgs. incl. library, 12,966 sq. ft. industrial arts bldgs. classroom bldgs. $1,600,000. CD 6/14/55.

▲ Del., New Castle—SCHOOL—Rosehill-Minquadale School Dist., New Castle, high school $3,200,000 E. William Martin, 830 West St., Wilmington, archt. Bids in November. CD 1/18/56.

▲ Fla., Miami—SCHOOL—Dade Co. Bd. Educ., 275 NW 2nd St., plans by Polevitsky, Johnson & Assocs., 250 NE 18th St., Technical High School, NW 95th St. and 18th Ave., $1,000,000. CD 11/3/55.

▲ Idaho, Lewiston—SCHOOL—School Dist. No. 1, Lewiston, plans by H. Richardson, Lewiston, 2 story Junior High School. $1,452,746.

▲ Ill., Chicago—SCHOOL—Chicago Bd. Educ., 228 N. LaSalle St., 2 story, brick, grade school, bounded by Warren Blvd., Washington St., Washtenaw and Talman Ave. $1,690,000. CD 6/11.

▲ Indiana—SERVICE STATIONS—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis, plans by Charles W. Cole & Son, 220 W. LaSalle St., South Bend, 6 service stations on Indiana Toll Rd., Westville, New Carlisle and Middlebury, $2,000,000. CD 2/10/54, under Streets and Roads.

▲ Mass., Chicopee—SCHOOL, Etc.—City, c/o Supt. Schools, Grape St., plans by Henry J. Tessier, 220 Dwight St., Springfield, combination high school and trade school, $2,000,000. Joseph A. Nowak, 9 Andrew St., Springfield, mechanical engr. Constr. late 1958.

▲ Mass., North Attleboro—SCHOOL—Town, Supt. Schools, High School Bldg., plans by Haldeman & Jacoby, 153 Main St., Brockton, Junior High School. $1,000,000. Constr. late 1958.

▲ Mich., Dearborn—COMMUNITY COLLEGE—City, Bd. Educ., voted bonds May 14, Henry Ford Community College on new campus. $4,950,000. CD 4/2.

▲ Mich., Greenville—SCHOOL—Bd. Educ., Greenville P. Schools, A. F. Allinder, supt. Schools, defeated

bonds May 6, school program, incl. high school. $2,950,000. CD 4/9.

▲ Minn., Columbia Heights—SCHOOL—Bd. Educ., O. Christopherson, clk., Court decision declares bond issue of $2,640,000 for Senior High School Voted on Mar. 18 was defeated. Project in abeyance but another election will be held. CD 3/27.

▲ Minn., St. Peter—HOSPITAL—State, Dpt. Admin., A. O. Vessey, dir. Procurement, 19 State Capitol, St. Paul, plans by W. Butler Co. 1300 Minesota Bldg., St. Paul, continued treatment hospital at St. Peter State Hospital. $1,250,000. Constr. probably 1960.

▲ N. J., Berkeley Heights—HOSPITAL—Bd. Freeholders Union Co., Elizabeth, plans by Leslie M. Dennis & Sons, Inc., 134 Elmora Ave., Elizabeth, 200 bed addn. to Runnells Hospital. $4,000,000. CD 11/22.

▲ N. J., West Orange—SCHOOL—Bd. Educ., second high school and Lincoln Junior High School addn. $1,900,000.

▲ O., Brewster—SCHOOL—Fairless Bd. Educ., Brewster, O., bond election Nov. 4, high school, $1,350,000. CD 11/12.

▲ O., Plainfield—SCHOOL—Bd. Educ., Three Rivers Local School Dist., defeated bonds May 6, Centralized High School, imprvs. to present bldg. $1,300,000. CD 1/23.

▲ O., West Carrollton—SCHOOLS—Bd. Educ., West Carrollton, voted $1,370,000 bonds May 6, school expansion program. CD 4/15.

▲ Okla., Stillwater—POWER PLANT—City, City Hall, turbo generator unit and steam generator also accessories for power plant. $2,150,000. G. H. Guernsey & Co., 2701 North, Oklahoma City, consult. engrs.

▲ Okla., Tahlequah—DORMITORIES, etc.—Northeastern State College, Dr. H. E. Garrison, pres., Oklahoma City, plans by Hudgins, Thompson Ball & Assocs., 1411 Classen Bldg., Oklahoma City, dormitory for men, dormitory for women, and housing facilities for 44 families, $1,447,000. CD 4/29/54.

▲ Ore., Portland—SCHOOL—School Dist. No. 1, 620 NE Halsey St., voted May 16, 3-year levy to raise $1,650,000 annually for school construction, $4,950,000. CD 4/30.

▲ R. I., Johnston—SCHOOL—Town, Supt. Schools, 80 Greenville Ave., plans by Joseph Mosher & Son, Inc., 77 Washington St., Providence, Central Junior High School. $1,000,000. CD 11/11.

▲ Tex., Lubbock—COLLEGE BLDG.—Texas Technological College, plans by Butler-Kimmel, 412 Ave. M, college bldg. $1,000,000.

▲ Va., Arlington—SCHOOLS—Arlington County Bd. Courthouse, voted bonds May 13, schools. $3,500,000. CD 4/11.

▲ Wash., Pullman—CHEMISTRY—Washington State College, plans by Harmon, Pray & Detrich, 2000 5 Ave., Seattle, Zone 1, chemistry bldg. $2,000,000. CD 3/4.

▲ Wis., Menomonie—PHYSICAL EDUCATION, etc.—Bd. Regents of State Colleges, Madison, physical education bldg., $1,000,000; heating plant, $900,000. R. C. Kirchhoff, state archt.

COMMERCIAL BUILDINGS

▲ Calif., Berkeley—RELIGIOUS COLLEGE—Church Divinity School of the Pacific, 2457 Ridge Rd., religious college expan., campus on Ridge Rd. $4,000,000.

▲ Colo., Denver—APARTMENT FOR AGED—Presbyterian Hospital, E. 19th Ave. and Gilpin, plans by Ford & Gross, 1301 Pennsylvania Ave., 6 story, 150-unit, apartment for elderly persons, incl. central dining room, 200 bed infirmary. $1,500,000.

▲ Ill., South Chicago Heights—HOSPITAL—Burgel Memorial Hospital, 75 E. 16th St., Chicago Heights, plans by O. B. Santostefano, 2418 Union Ave., Chicago, 4 story, brick hospital, Sauk Trail and Chicago Rd. $2,000,000.

▲ Kan., Hays—DORMITORY—Kansas State College, Dr. M. C. Cunningham, pres., Hays, (Kan-14-CH-43D), men's dormitory and student family facility. $1,000,000.

▲ La., New Orleans—DORMITORY—Tulane University, c/o Dr. Clarence Scheps, comptroller, 6823 Charles Ave., plans by Diboll, Kisells & Assocs., 637 Pere Antoine, Alexandria (LA 16-CH-20D) 518 capacity men's dormitory. $2,100,000.

▲ Minn., Golden Valley (P.O. Minneapolis)—GERIATRICS—Glenwood Hills Hospitals, 3901 Golden Valley Rd., plans by M. V. Abbott, 240 Foshay Tower, Minneapolis, 2 or 3 story, 100-bed geriatrics bldg. at site. $1,000,000. Constr. 1958.

▲ Minn., Golden Valley (P.O. Minneapolis)—SCHOOL—Lutheran Bible Institute, 1619 Portland Ave., Minneapolis, plans by Hammel & Green, 1932½ University Ave., St. Paul, school near Olson Hy. and Douglas Dr. $1,500,000. Constr. summer 1959. CD 6/13/56.

▲ Minn., St. Paul—STUDENT UNION—St. Thomas College, 2115 Summit Ave., plans by Ellerbe & Co., E. 505 First Natl. Bank Bldg., 3 story student union bldg., incl. cafeteria. $1,800,000.

▲ Mo., Kansas City—ADMINISTRATION—Mid-Western Bap. Theological Seminary, c/o Dr. M. J. Berquist, pres. 12 Westport Rd., plans by Hedrick & Stanley, 1200 T & P Bldg., Ft. Worth, Tex., Unit 1, administration bldg. $1,500,000. Constr. 1958.

▲ Mo., St. Louis—DORMITORIES, etc.—Washington University, Ethan A. H. Shepley, chancellor, Skinker and Lindell Blvd., Zone 5, plans by Hellmuth, Obata & Kassabaum, 315 N. 10th St., Zone 1, two 4 story dormitory bldgs. for women; two 4-story dormitory bldgs. for men and 2 story food service bldg., on 40-

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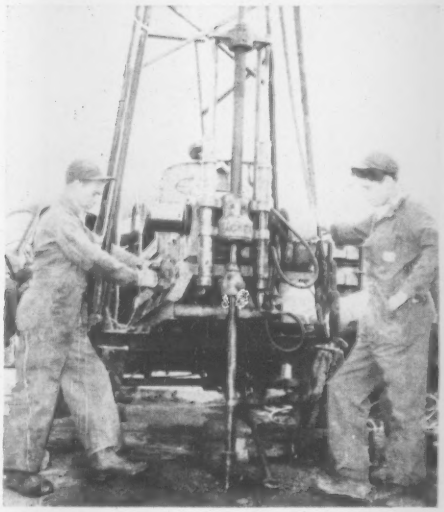

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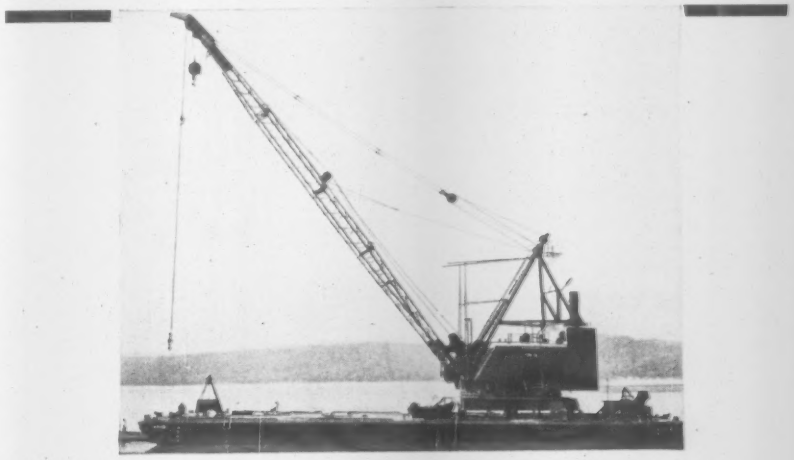

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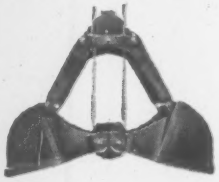

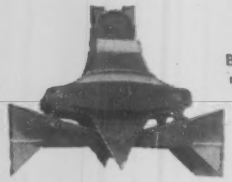

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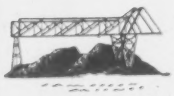

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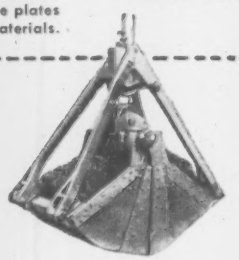

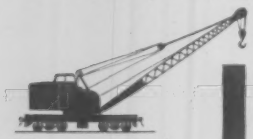

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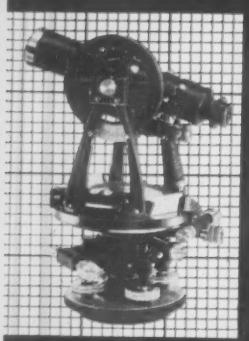

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acre tract east of Big Bend Blvd. between Forsyth and Wydown Blvds. $3,000,000. CD 3/1/55.

▲ Mo., St. Louis County—COLLEGE, etc.—Maryville College of Sacred Heart, Mother Marjorie Erskine, P.S.C.J. pres., 2900 Meramec St., St. Louis, Zone 18, new college, classrooms bldgs., dormitories for girls, chapel, quarters for nuns and faculty, administrative offices, etc., on 124-acre tract on Woods Mill Rd. at Daniel Boone Parkway, U. S. 40-61, 6 mi. west of Lindbergh Blvd. $3,000,000. CD 8/13, under Mo., St. Louis.

▲ N.J., Haddonfield—SCHOOL—Bancroft School, school addns. $3,000,000.

▲ N. Y., New York—ART GALLERY—Huntington Hartford Enterprises, 18 E. 48 St., Zone 17, plans by Edward D. Stone, 50 E. 64th St., Gallery of Modern Art, Columbus Circle, 58th St. and 8th Ave. $3,000,000. CD 6/12/56.

▲ N.Y., New York—MOTEL—Motel City (Albert T. Loewy and New York Central R.R. Co.) c/o Wechsler & Schimenti, archts., 118 E. 25 St., 3 story motel over railroad tracks at 10th and 11th Aves., 41st to 44th Sts. $4,000,000.

▲ N. Y., White Plains—SHOPPING CENTER, etc.—Westchester Center, Inc., c/o John Graham & Co., archts., 444 5th Ave., New York, shopping and civic center, incl. department stores, office bldgs., theatre, museum, medical facility, recreation center, air-raid shelter and post office, Hutchinson River Parkway, Mamaroneck Ave. and North St. $10,000,000. (Rezoning needed).

▲ Ore., Portland—HOTEL—Hilton Hotels Corp., 9970 Santa Monica St., Beverly Hills, Calif., plans by Skidmore, Owings & Merrill, 2040 SW Jefferson St., hotel. $10,000,000. CD 4/27/54.

▲ Tenn., Nashville—MOTEL, etc.—Holiday Inns of America, 887 Raynor St., Memphis, 4 story, 150 units motel and parking area on 1.1 acre tract in the capital hill development area, incl. swimming pool and restaurant. $1,000,000.

▲ Tenn., Oak Ridge—HOMES—James M. Chamberlain, 720 Walnut St., Chattanooga, 120 homes. $2,000,000.

▲ Tex., Beaumont—SCHOOL, etc.—Episcopal Churches of Beaumont, c/o Ed. M. Hartwell, chn., c/o Fehr & Granger, archts., 502 E. 5th St., Austin, school and church expan. $1,000,000.

▲ Tex., Houston—SHOPPING CENTER—Frank E. Meyer, Builder, 802 Franklin, plans by Werlin & Kiefner, 3501 Buffalo Dr., shopping center, Bellaire Blvd., Chimney Rd. and Chimney Rock. $1,250,000. Walter P. Moore, 2 Pinedale, consult. engr.

▲ Tex., Houston—HOTEL, etc.—Clint W. Murchison, Jr., 1201 Main St., Dallas, 250 room resort hotel, $2,000,000-$3,000,000., boating, fishing recreational facilities $90,000., area paving, and auto center $85,000, all at Clear Lake, Sandy Point 25 mi. south of here.

▲ Tex., San Antonio—BOWLING CENTER—Col. Jos. Carmack & Assocs., 434 E. Hathaway, bowling center, 6 acre tract, off 1900 block Austin Hy. $1,000,000.

▲ Wash., Factoria—HOUSES—J. Davis & Co., 2nd and University Bldg., Seattle, Zone 1, 75 houses in Woodview area on Sunset Hy. $1,500,000.

▲ Wash., Lynnwood—SHOPPING CENTER—Pacific Coast Mortgage Co., c/o Judge F. D. James, County-City Bldg., Seattle, Zone 4, shopping center, $2,000,000. J. Fraham & Co., 1426 5 Ave., Seattle, Zone 1, archts.

▲ Wash., Seattle—APARTMENT—Nettleton & Baldwin Interests, c/o Jones, Lovegren, Helms & Jones, archts., Republic Bldg., 19 story apartment, 1000 University St. $3,000,000.

▲ Wash., Spokane—SCHOOL—Good Shepherd Home, N. 4819 Lidgerwood St., plans by Culler, Gale, Martell & Norrie, Realty Bldg., school, recreation and dormitory use, $1,000,000.

▲ Ont., Peterborough—HOSPITAL—St. Joseph's Hospital, Peterborough, plans by Edward J. Turcotte, City and District Bank Bldg., 1478 St. Catherine St. W., Montreal, Que., new wing and fifth story addn. to existing hospital. $1,500,000.

▲ Que., Sherbrooke—HOSPITAL, etc.—Soeurs Grises de l'Hospital, Murray St., plans by Audet, Tremblay & Audet, 1100 Prospect St., hospital addn., 7 story wing for nurses' school gymnasium and auditorium. $1,000,000.

INDUSTRIAL BUILDINGS

▲ Del., Millsboro—GENERATING PLANT—Delaware Power & Light Co., 600 Market St., Wilmington, second unit, 85,000 kw. generating plant, Indian River Power Station, $25,000,000.

▲ N. J., Camden—RESEARCH LABORATORY, etc.—Campbell Soup Co., 100 Market St., plans by Carson & Carson, 16 S. Broad St., Phila., Pa., research laboratory and industrial bldg., $1,000,000; machine shop and office bldg., $750,000. Alexander D. Crossett & Assocs., 27 William St., New York, N. Y., consult. engrs.

UNCLASSIFIED

▲ Arkansas—GAS TRANSMISSION LINE, etc.—Arkansas Western Gas Co., Fayetteville, 12 in. gas transmission line in Franklin Co. to replace present 8 in. line; 8 in. gas to parallel main line in Madison Co., compressor station in Franklin Co. $1,586,610. CD 8/19/46.

▲ N. H., Hinsdale—HORSE RACE TRACK—Hinsdale Raceway Inc., c/o Joseph T. Christiano, atty., 17 Roxbury St., Keene, plans by H. E. Davidson & Son, 66 Beacon St., Boston, Mass., horse race track, $1,250,000.

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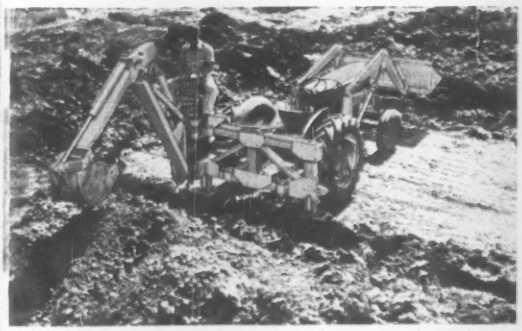

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NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
June 10 Massachusetts

BUILDINGS—BA

▲ Mass., Whitman—SCHOOL—BA 6/20—Towns, Whitman and Hanson, Regional High School Dist. Comm., Principal's Office, Essex St., Regional High School, Franklin St. $2,000,000. Plans deposit $100. Korslund, LeNormand & Quann, Inc., 506 Washington St., Norwood, archts. CD 5/20, under LB.

▲† Mass., Ayer—BARRACKS, etc.—BA On Or About 6/25—U.S. Eng. Area Officer, 187 Westminster St., Providence, R.I., four 3 story EM barracks, two 1 story consolidated messes, two administration and storage bldg., incl. plumbing, electrical and forced hot water heat from converter supplied from central boiler room of messes, individual electric water heaters, etc. at Fort Devens, ENG-10-016-58-178. $3,000,000-$4,000,000. Plans deposit $25. CD 9/20.

HEAVY CONSTRUCTION—LB & CA

▲† J. R. Cianchette, P.O. Box "M", Pittsfield, Me., LB $3,209,472, est. $3,653,036, operational apron and hydrant sys., Dow Air Force Base, ENG-19-016-58-19, BANGOR, ME. U.S. Eng., 150 Causeway St., Boston, Mass. Bids May 23. CD 4/30.

▲† J. R. Cianchette, Main St., Pittsfield, Me., CA (A) $6,814,746, est. $7,863,222 missile facility at Presque Isle Air Force Base, ENG-19-016-58-132, PRESQUE ISLE, ME. U.S. Eng., 150 Causeway St., Boston, Mass. Grad, Urban & Seelye, 120 Greenwich Ave., New York, N. Y., engrs.-archts. Bids May 14. CD 4/16, under LB.

▲† Perini Corp., 73 Mt. Wayte Ave., Framingham, Mass., CA $4,012,418 constr. North Hartland Dam and appurtenant structures Ottauquechee River in towns of Harland and Hartford, Windsor Co., ENG-19-016-58-60, VERMONT. U.S .Eng., 150 Causeway St., Boston 14, Mass. Bids May 1 CD 5/6; under LB.

BUILDINGS—LB & CA

▲ Ruderman & Sanders, 3 Sue Ter., Westport, Conn., Owner Builds. $4,130,000, 350 HOUSES "High Point", Hill St., ANSONIA, CONN. Daniel B. Guion, Daniels Farm Rd., Trumbull, Conn., engr.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES
June 10 Maryland — June 26 New York

STREETS AND ROADS
June 13 Pennsylvania — June 26 New York

BUILDINGS—BA

▲ Pa., Phila.—YORK HOUSE—BA 6/9—Home of the Jewish Aged, 5301 York Rd., 11 story, 206 unit York House. $2,000,000. Demcheck & Supowitz, 246 S. 15th St., archts. David Bloom, 1411 Walnut St., engr. CD 1/7.

HEAVY CONSTRUCTION—LB & CA

▲ NEW YORK—Dpt. P. Wks., The Gov. Alfred E. Smith, State Office Bldg., Albany,
Terry Contg., Inc., 31 E. 27 St., New York, Zone 16, CA $1,967,863, superstructure and approach work for bridge to carry Empire Stateway over Oneida Lake, east of Brewerton, Oswego Co. Bids May 1. CD 5/7, under LB.

▲ The Buffalo Electric Co., Inc., 75 W. Mohawk, Buffalo, N.Y., LB $4,042,350 (4 bidders), complete installation of relocated electrical facilities involving 16,000 cu. yd. concrete, 5,800,000 lb. structural steel, 440 structures wood pole structures—various types from 12 KV to 230 KV; 82 mi. line conductors, 60 mi. overhead ground wire; 4,000 lin. ft. of 4 conduit duct bank; 2,500 lin. ft. of 6 conduit duct bank in Lewiston, Niagara and Niagara Falls, Niagara Co. Contr. No. N2, Spec. No. PA-N-25034, NEW YORK Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N.Y. Bids May 27. CD 5/1.

▲ Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., CA $4,287,625, sanitary sewers in Lynbrook East Rockaway and Hewlett, MINEOLA, N. Y. Bd. Supervs. Nassau Co., Old County Court House, Mineola, N. Y. Bids Mar. 25. CD 3/27, under LB.

▲ PENNSYLVANIA—Pa. Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Berlanti Constr. Co., Inc., 15 Oakland Ave., Harrison, N. Y. CA $4,481,042, est. $5,600,000 0.67 mi. 4 lane viaduct as approach for South Bridge, incl. plate girder and 6 I-beam bridges retaining walls, Proj. 81301 FAI, Dauphin Co. Bids Apr. 25, awarded May 22. CD 4/29, under LB.

▲ Carl E. Widell & Son, Haddonfield Rd., Merchantville 10, N. J., CA $2,308,254, Contr. 2, constr. waste treatment plant in Westernport, CUMBERLAND, MD. Upper Potomac River Comn., Cumberland, Md. Hazen & Sawyer, 122 East 42nd St., New York, N. Y., and Gibbs & Hill, Inc., Pennsylvania Sta., New York, N. Y., consult. engrs. Bids Mar. 28. CD 3/7; George F. Hazelwood Co., Box 779, Cumberland, Md., CA $485,860, Contr. No. 1, constr. trunk sewer running from Luke to Westernport, (Cumberland, Md.).

BUILDINGS—LB & CA

▲ Mars Assocs. & Normel Constr. Co., 271 Church St., New York 13, N.Y., LB $2,077,000 (6 bidders), general constr., plumbing and drainage, heating and ventilating electrical work and lighting fixtures for JUNIOR HIGH SCHOOL 51, Houston St. and Willowbrook Rd., Grantville, Richmond Boro, MARINERS HARBOR, N.Y. Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, New York Zone 1, N.Y. Bids May 27. CD 4/28.

▲ George A. Fuller Co., 597 Madison Ave., New York 22, N.Y., CA Est. $20,000,000, 31 story OFFICE BLDG., 222 Broadway between Fulton and Ann Sts., NEW YORK, N.Y. Western Electric Co., 195 Broadway, New York Zone 7, N.Y., Shreve, Lamb & Harmon, 111 W. 44th St., New York 36, N.Y., archts. CD 1/30.

▲† Anthony P. Miller Co., Inc., 3333 Artic Ave., Atlantic City, N. J., LB $4,381,139, (4 bidders), 290 units Capehart HOUSING, at Niagara Air Force Base, NIAGARA FALLS, N. Y. Procurement Officer, Niagara Air Force Base, Niagara Falls, N. Y. Bids May 27. CD 5/21.

▲ Lori Constr. Co., 310 W. Westfield Ave., Roselle Park, N. J., Own Forces, $3,000,000, 150 HOUSES incl. lake and utilities at Winston Park on Rte. 9, north of LAKEWOOD, N. J.

▲ Rosslane Realty Corp., 1051 Irving Ave., Brooklyn, N. Y., Separate Contracts. $2,170,000, 217 unit RESIDENTIAL DEVELOPMENT, BROWNS MILLS, N. J., Irwin Gerber, 11 Commerce St., Newark, N. J., archt.

▲ Levinstein, Pantirer & Zuckerman, 854 Westminster Ave., Hillside, N. J. Own Forces, $3,000,000, 150 HOUSES, Rich, Gordon tract off Springfield Ave., NEW PROVIDENCE, N. J. Arthur Katz, 875 Broad St., Newark, N. J., archt.

▲ Barba Constr. Co., Woodland Ave., Summit, N. J., Own Forces, $2,850,000, 71 HOUSES, Highlands Ave., SUMMIT, N. J. Stephen Potter, 410 Colonia Ave., Union, N. J.

▲ Wellmore Builders, Inc., Club Dr., Summit, N. J., Own Forces, $3,000,000, 42 HOUSES in Drum Hill section, SUMMIT, N. J.

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This **STEELCRAFT BUILDING** looks conventional enough—that's the effect our customer wanted. But he didn't want to build at "conventional" prices! So he chose a Steelcraft pre-engineered structure for the "heart" of his building, added architectural refinements, and saved thousands of dollars in material and labor costs.

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Company_____
Street_____
City_____ State_____

▲ Winfield, Scott & Douglas Anderson as Washingtonville Estates, Inc., 308 Beekman St., Plainfield, N. J. Own Forces, $2,500,000, 60 luxury type HOMES, Anscot Hill, WATCHUNG, N. J.

▲ Standard Constr. Co., 1010 Vermont Ave. N. W., Wash., D. C., CA $3,165,000, constr. 274-dnits HOUSING PROJECT DC 1-22, Benning Terrace, G St. S.E. between 47th St. and Alabama Ave., WASH., D. C. National Capitol Housing Auth., 1729 New York Ave., N.W., Wash., D. C. Bids Apr. 17, awarded May 23. CD 4/24, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 11 Louisiana

STREETS AND ROADS

June 11 Louisiana June 20 Kentucky

HEAVY CONSTRUCTION—LB & CA

▲† Malan Constr. Co., 2 Park Ave., New York, N. Y., LB $1,980,001 (3 bidders) roads and utilities Naval Air Facility (Harvey Point), NBy 15196, Spec. 15196/57, HERTFORD, N. C. Dist. P. Wks., Fifth Naval Dist., Room 307, Bldg. N.-26, Naval Base, Norfolk, Va. Bids May 27. CD 5/2;
A. J. Jenkins, Warsaw, N. C., LB $1,498,381 (12 bidders) fueling facilities, Naval Air Station (Harvey Point) NBy 15296, Spec. 15296/58, (Hertford, N. C.).

▲ SOUTH CAROLINA—State Hy. Dpt., Hotel Jefferson, Columbia,
Boyle Constr. Co., Drawer 1491, Sumter, S. C. CA $2,253,614 grading, etc. 10.588 mi. 4 lane divided hy. Int. Rte. 26 from Rte. 773 to Rte. 19 S. C. Docket no. 36.324 F. A. Proj. no. I-304-2 (20) Newberry Co. Bids Apr. 15. CD 4/23, under LB.

▲† William E. Arnold, 666 Dyal St., Jacksonville, Fla. and Wiley N. Jackson Co., Box 1408, Roanoke, Va., (joint venture) LB $3,396,700, Ammunition Storage Facility, U. S. Naval Magazine, Yellow River, NBy 13953, Spec. 13952/57, Yellow Water, FLORIDA. Dist. P. Wks. Office, 6 Naval Dist. Bldg. 13, Charleston, S. C. Kemp, Banch & Jackson, 33 Hogan St., Jacksonville, Fla. archts. Lockwood Greene Engineers, Inc., Spartanburg, S. C., engr. Bids May 21. CD 4/8.

▲† Massman Constr. Co., 3917 Broadway, Kansas City, Mo., LB $15,416,055 est. $17,778,509 (4 bidders) dam on Ohio River for Greenup Locks and Dam, at Greenup, Serial No. CIVENG-46-022-58-45, KENTUCKY. U. S. Eng., P. O. Box 2127, Huntington 18, W. Va. Bids May 21. CD 5/6.

BUILDINGS—LB & CA

▲ George A. Caldwell, Box 1270, Baton Rouge, La., CA $2,071,597 (6 bidders), 127,000 sq. ft. JUNIOR-SENIOR HIGH SCHOOL, BATON ROUGE, LA. East Baton Rouge Parish School Bd., Baton Rouge, La. Bids May 22. CD 5/6.

▲ Gene Van Meter, Salem, Ind., Owner Builds, $3,000,000, 125 HOUSES, Klondike Lane, Klondike Sub-division, LOUISVILLE, KY.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲† Wisconsin-Minnesota—NIKE INSTALLATIONS—BA On Or About 6/24—U.S. Eng., 1217 U.S. Post Office & Custom House, St. Paul 1, Minn., constr. Nike missile control and launching facilities near (1) MSP-20, near Roberts, St. Croix Co., Wis.; (2) MSP-40, near Farmington, Dakota Co., Minn.; (3) MSP-70, near St. Bonifacius, Hennepin and Carver Counties, Minn.; (4) MSP-90, near Bethel, Isanti Co., Minn.; Minneapolis-St. Paul Defense Area, Inv. ENG-21-018-58-19, $1,500,000 each, CD 4/1.

BUILDINGS—BA

▲ Wis., West Allis—HOSPITAL—BA 7/3—West Allis Memorial Hospital, c/o City Hospital Constr. Comm., 5 story, 254 bed hospital. $6,000,000. Plans deposit $100. Darby, Bogner & Assocs., 8801 W. National Ave., archts. CD 8/28/56.

HEAVY CONSTRUCTION—LB & CA

▲ OHIO—State Hy. Dpt., Columbus, Zone 14,
O.—S. J. Groves & Sons Co., 500 Wesley Temple Bldg., Minneapolis, Minn., CA $5,948,320, est. 56,475,300, Type T-71 and structures, 8.453 mi. SR 1-3.52, AC1-1105 (31) Ashland Co.;
O.—S. A. Ruebel & Co., 800 Ross Ave., Cincinnati, 17, O., CA $2,380,010, est. $2,702,600, Type T-71 and structures, 5.990 mi., USR 25-5.77 ACL-1101 (13) Butler Co.;
O.—V. N. Holderman & Sons, Inc., 890 Oakland Ave., Columbus, O., CA $2,896,773, est. $2,998,200 Type T-71 and structures, 5.068 mi., SR 1-1.45, AC1-1105 (32) Richland Co.;
O.—George W. Lathrop & Sons, Inc., and The Peirce Constr. Co., P. O. Box 772, Toledo, 10, O., CA $4,867,392 est. $4,972,200, Type T-71 and structures 6.941 mi., Shelby Co.;
O.—Claude A. Janes, Inc., Box 127, Chesterhill, O., CA $684,978 est. $816,600, Type T-35 on B-20 and structures, 3.378 mi. SR 75-(10.30-13.27) F-53 (4) Vinton Co.; Bids May 13, CD 5/22/58, under LB. Grand total $16,777,472.

▲ Huber, Hunt & Nichols, Inc., 2450 Stebbs St., Indianapolis, Ind., LB $5,485,000, (6 bidders), constr. 55,000-seat football stadium Indiana University, BLOOMINGTON, IND., Bids May 22, CD 5/6.

MICHIGAN—State Hy. Dpt., John C. Mackie, hy. comr., Stevens T. Mason Bldg., Lansing,
Mich.—A. Lindberg & Sons and Bacco Constr. Co., Ishpeming, Mich., (joint bid) LB $2,340,678, est. $2,380,000, 27-ft. aggreg. base course with prime and double seal 7.712 mi. US-45 from M-26 south, F 66032 C1-R (F 193 17), Ontonagon Co.;
Mich.—Brown Brothers, 3245 W. St., Joseph, Lansing, Mich., LB $1,393,247, est. $1,610,000, dual 24 ft. concrete pavement 9 in. uniform 1.693 mi. and four bridges on US-16 relocation from US 16 east of Portland westerly to Grand River Bridge. BI 34044 C5-RN BI 34044 C6-UN (I 04-2 8) BI B1 of 34-14-6 C1 RN also B2 B3 and B4 (I 04-2 8) 34044 Ionia Co. CD 5/10.

BUILDINGS—LB & CA

▲ Price-Kauker Constr. Co., 11820 Edgewater Dr., Lakewood 7, O., Own Forces, $2,100,000, 70 HOMES, at Huntington Valley Estates, BAY VILLAGE, O. CD 8/29.

▲ Briar Root Acres, Inc., c/o Harold J. Aronson, 2960 E. Belvor Oval, Cleveland, O. Owner Builds. $3,500,000. 290 HOMES, Route 14, STREETSBORO, O.

▲ Streetsboro Plaza, Inc., c/o Harold J. Aronson, 2960 E. Belvor Oval, Cleveland, O., Owner Builds. $2,250,000, SHOPPING CENTER, north side of Route 14, STREETSBORO, O.

▲ Rogers Engr. & Constr. Co., Vincennes, Ind., CA $2,000,000, 50,000 sq. ft. INSULROCK PLANT, on 30 acres, NORTH JUDSON, IND., The Flintkote Co., Inc., 30 Rockefeller Plaza, New York 20, N. Y. CD 9/13/56.

▲ Harvey A. Hanson Builders, Inc., 1851 N. Elston Ave., Chicago, Ill., CA $2,000,000, 7 story, brick APARTMENT, 601 Greenwood St., northwest corner Chicago Ave., EVANSTON, ILL. Owner, c/o Heil & Heil, 1326 Chicago Ave., Evanston, Ill. CD 3/24.

▲ Klefstad Eng. Co., 4444 W. Montrose Ave., Chicago, Ill. Owner Builds, $3,000,000, 1 story, 529,000 sq. ft. steel, concrete, brick WAREHOUSE, WAUWATOSA, WIS., Lessee, General Merchandise Co., 207 N. Milwaukee St., Milwaukee, Wis. CD 9/20/56.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 16 California

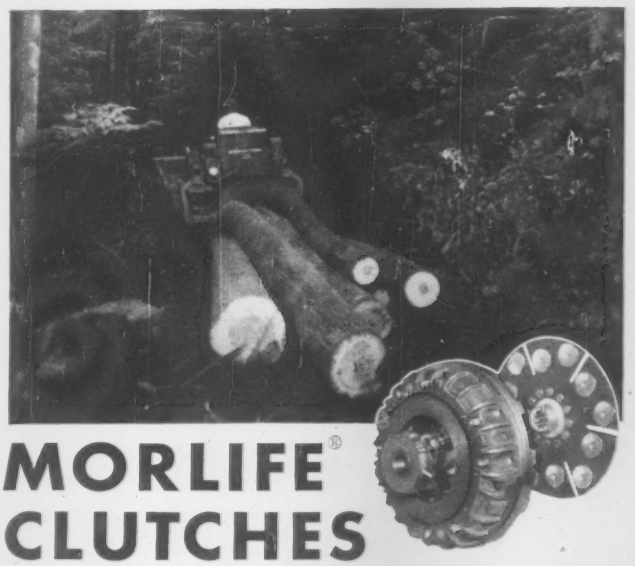
STREETS AND ROADS

June 12, 17 Kansas June 13 Minnesota

▲ Iowa-Illinois—BA 6/24—Davenport Bridge Comm., Office of Mayor, City Hall, Davenport, Iowa, super-

(Continued on page 106)

ROCKFORD



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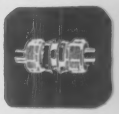
Provide Easy Operation by Reducing Hand Lever Pull 50%

Compared to previous type clutch facings, Morlife® Clutch facings reduce hand-lever pull up to 50%. They assure positive engagement—with power-holding grip. Provide a degree of heat resistance and dissipation never before available. They give four times the durability for prolonging clutch life and extend the time between adjustments ten times as long. Let ROCKFORD clutch engineers show you how these new advantages will improve the operating ease and prolong the on-the-job life of *your* product.

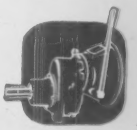
Small Spring Loaded

Heavy Duty Spring Loaded


Oil or Dry Multiple Disc

Heavy Duty Over Center

Power Take-Offs


Speed Reducers

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER

313 Catherine St., Rockford, Ill., U.S.A.

Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

Tough hauling problem? Take a look at

If heavy loads, rough roads and steep grades, *with little or no turn-space,* are part of your hauling problems, then you'll find some answers in Koehring Dumptor. Come along on a typical load-haul-and-dump cycle:

There's no slow jockeying back and forth at the loader. Dumptor spots into position fast — is loaded over the sides, or over either end. Wide-flared 6-yard body, with low height, provides a big square target — *64 square feet, to be exact.* This reduces spillage, steps up output of shovel, dragline, clamshell, or tractor type loader — adds extra trips to daily production.

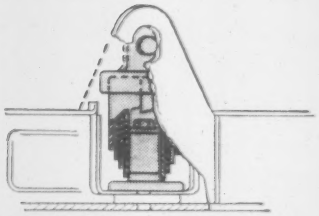
On the haul, Dumptor accelerates fast, pulls through soft ground with less shifting — climbs 24% ramps or grades fully loaded. It has better than 6 H.P. of *"go"* for every ton of loaded weight. Narrow haul roads, ledges, tunnels, overhead ramps and trestles are no problem, *There is no need to turn,* because Dumptor operates with equal ease and speed in either direction. It gets this unique *no-turn shuttle-haul* advantage through a constant-mesh transmission that gives the same, fast, 3-speed travel forward and backward. Every turn saved cuts 15 seconds off cycle-time.

At the dump area (above), *gravity* tilts the body, dumps the load in *one second.* No 15 to 25-second wait for slow-acting mechanical body-hoist — no hoist maintenance. *Gravity-dump* never balks — never wears out. Heavy-duty Dumptor

Dumptor®....

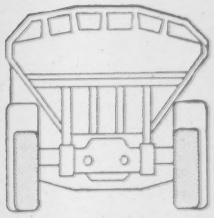
also has a ton of strength for every ton of payload capacity. Sides, ends of body are rib-reinforced. Double-plate bottom is lined with multiple steel beams. Check its other advantages at right — then ask Koehring distributor to demonstrate what Dumptor can do on your heavy, off-road hauling. Call him *today*.

KOEHRING
DIVISION OF KOEHRING COMPANY
MILWAUKEE 16, WISCONSIN K766



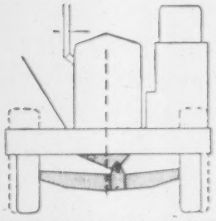
HEAVY-DUTY CHASSIS SPRING

Dumptor has just one chassis spring — a heavy snubber-type, mounted between main frame and steering axle. No leaf springs. Big shock-absorbing drive tires eliminate springs and spring maintenance on drive axle.



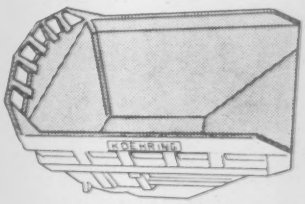
TIRES TRACK IN DIRECT LINE

Wide, heavy steering axle puts Dumptor steer wheels in line with drive wheels. Tires track in the same path. There's less rolling resistance, better traction in soft ground, on loose stockpiles and over rough haul roads.



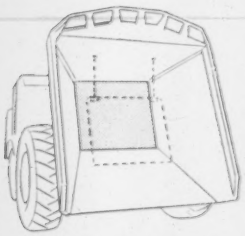
OFF-SET PIVOT ON AXLE

Pivot point on steering axle is offset from center line 3¼" toward operator side of Dumptor. There's no sag, even with unbalanced loads. Steering axle oscillates up to 21°, helps keep twisting strains out of main frame.



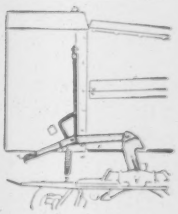
STREAMLINED ALL-STEEL BODY

There are no bulges or ledges inside the body. Top edge is box beam construction. Sides and ends are ribbed with 5 and 8-inch channels. Bottom is lined with multiple steel beams. Sturdy ridge bar joins rock guard teeth.



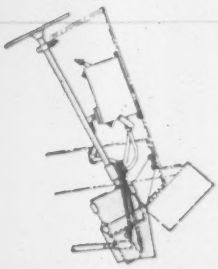
BOLTED OR FREE-SWINGING PAN

Heavy steel kick-out pan is ½" thick. Pan can be bolted to body floor for extra protection when loading rock. Remove bolts, and pan has swinging kick-out action . . . breaks load suction when dumping wet or sticky materials.



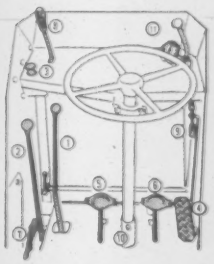
SIMPLE BODY LATCH

Body latch for 1-second gravity dump is simple and trouble-free. Latch is engaged by a single hook mounted on the chassis frame. Dump lever is located inside cab in an easy-to-reach position for quick effortless dumping.



HYDRAULIC POWER-STEER

Power steering adds to Dumptor maneuverability for fast spotting, lets driver handle off-road travel with ease. Dumptor has a short turning radius of only 19'-3", far less than other haulers of comparable capacity.



EASY-REACH CONTROLS:

(1) speed gear shift, (2) directional gear shift, (3) starting aid, (4) foot throttle, (5) clutch pedal, (6) brake pedal, (7) parking brake, (8) body release lever, (9) hand throttle, (10) light control switch, (11) Controlator.

(Continued from page 103)

structure for the expansion and imprv. of Iowa-Illinois Memorial Bridge over Mississippi River between Bettendorf, Iowa and Moline, Ill., Contr. 2. Plans deposit $20, Modjeski & Masters, 6th St. at Forster St., Harrisburg, Pa., engrs.

BUILDINGS—BA

▲ Minn., Mankato—DORMITORY, etc.—BA 6/24—State College Bd., Dr. R. Prentis, ex. dir., Mea Bldg., 41 Sherburne Ave., St. Paul, 4 story, 39 x 200 ft. men's dormitory, administration bldg. and dining activities bldg. $2,000,000. Schmidt, Peterson-Stevenson, Mankato, archts. CD 7/26.

BUILDINGS—SLC

▲ Mo., St. Joseph—HOSPITAL—St. Joseph's Hospital, c/o Sister Marguerite, hosp. admin., 9th and Powell Sts., soon lets contract, 6 story, bsmnt., sub-bsmnt. hospital. $4,000,000. Everett Johns, 5171/2 Francis St., archt. Wm. L. Cassell, 912 Baltimore, Kansas City, Mo., mechanical engr. CD 5/2.

HEAVY CONSTRUCTION—LB & CA

▲† Winston Bros. Co., Johnson, Drake & Piper and Green Constr. Companies, 1470 N. Western Bank Bldg., Minneapolis, Minn. CA $4,170,432 powerhouse substructure, Oahe Reservoir Proj., near Pierre, ENG-25-066-58-107, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids About May 15, Awarded May 24. CD 5/20, under LB.

▲† Welsh & Lewellin Constr. Co., Shawnee, Okla., LB $3,536,600, est. $2,000,000 230 unit family housing, Vance Air Force Base, IFB 34-600-58-40, ENID, OKLA. Base Contg. Dpt., Enid, Okla. Bids May 20. CD 5/6.

Tex. CA $2,750,000 first portion of 78 mi. 30 in. pipe line between Port Arthur and Clear Lake near Houston, TEXAS. Humble Oil & Refining Co., 1210 Main St., Houston, Tex. CD 3/12;
Sharman, Allen Gray & Taylor, Inc., Bayou Bldg., Houston, Tex. CA $2,250,000. 2nd portion of 78 mi. gas 30 in. pipe line between Port Arthur and Clear Lake near Houston (Texas).

▲† Trinity Constr. Co., Inc., 3703 Lemke St., Houston, Tex. LB $3,191,254. rectification and imprvs. to portion Brays Bayou, Almeda to Old Main and Chimney Rock Rd. to Richmond Rd., Houston, Harris Co. ENG-41-243-58-48 TEXAS. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids May 20. CD 5/13.

▲† Peter Kiewit Sons Co., 501 St. Johns Ave., Billings, Mont. CA $13,295,335 runway aprons and utilities, Glasgow Air Force Base, ENG-45-164-58-50, GLASGOW, MONT. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids May 15, awarded May 22. CD 5/19, under LB.

BUILDINGS—LB & CA

▲ O. F. Paulson Constr. Co., 1862 E. Ave. N.E., Cedar Rapids, Iowa. CA Est. $2,000,000, 5 story, 100x150 ft. DEPARTMENT STORE addn., CEDAR RAPIDS, IOWA. Armstrong Dpt. Store, 204 Second Ave. S.E., Cedar Rapids, Iowa. Bids May 22. CD 4/30.

▲ Dickmann-Pickens-Bond Constr. Co., 3712 W. Okmulgee, Muskogee, Okla., CA $6,500,000, PLANT for production of tantalum and columbium on 110 acre site located on Arkansis River, MUSKOGEE, OKLA. Fansteel Metallurgical Corp., 2200 N. Sheridan Rd., North Chicago, Ill. A. Epstein & Sons, Inc., 2011 W. Pershing Rd., Chicago, Ill., archt.

▲† Richmond Equipment Co., 2411 Times Blvd., Houston, Tex. LB $2,016,574 (4 bidders) Base Bid. 125 unit Capehart HOUSING, ENG-41-243-58-32; MEDINA BASE, TEX. U. S. Eng., 606 Santa Fe. Bldg., Galveston, Tex. Bids May 22. CD 4/29.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 17 Idaho — June 25 California

STREETS AND ROADS

June 10 Washington — June 26 California

▲ Calif., Long Beach—TRANSIT SHED, etc.—BA 6/19—Long Beach Harbor Dpt., 1333 Embarcadero, transit shed and reconstr. wharf at Pier A, Berths 1 and 2, Spec. HD 341. $2,000,000. CD 2/5.

▲† Calif., El Toro—TACTICAL AREA 111—BA 6/20—Eleventh Naval Dist., 1220 Pacific Hy., San Diego, constr. Tactical Area 111 at Marine Corps Air Base, Spec. 7439-56. $2,500,000. CD 9/17.

HEAVY CONSTRUCTION—LB & CA

▲† Gibbons & Reed, 825 W. 9th North, Salt Lake City, Utah. CA $2,298,052, Sched. A and C 75,000 sq. yd. concrete parking apron to be used by 28th Logistic Support Squadron, HILL AIR FORCE BASE, UTAH. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids Apr. 10. CD 3/31.
Maurice B. McCullough Co., 503-13th Ave., Salt Lake City, Utah. CA $886,600 Sched. B (Hill Air Force Base, Utah).

▲† McCammon—Wunderlich Co. and Wunderlich Constr. Co., P.O. Box 359, Palo Alto, Calif. CA $7,057,620 (joint venture) dredging 7 mi. section Sacramento Deep Water Channel and related levee work, Spec. No. 2388, ENG-04-156-58-17, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids May 20, awarded May 26. CD 5/22, under LB.

▲ Guy F. Atkinson Co., 22233 Santa Fe Ave., Long Beach, Calif. CA $1,873,285 boat basin and shore line imprvs., Phase No. 2 of Long Beach Navy Landing, LONG BEACH, CALIF. City, Long Beach City Council, City Hall, Long Beach, Calif. Bids May 15, awarded May 20. CD 5/19, under LB.

▲ R. A. Wattson Co., 12550 Saticoy St., North Hollywood, Calif. LB $2,465,219 constr. Arroyo de la Sacatela Storm drain, Bond Issue Proj. No. 57, Unit 1, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids May 23. CD 4/28.

▲† Cal-Apex, Inc., 12415 Ventura St., Studio City, Calif. CA $11,397,000 constr. armed services housing at Edwards Air Force Base, ENG-04-611-58-200, MUROC, CALIF. Project Office, Edwards Air Force Base, Muroc, Calif. Bids May 14. CD 5/19, under LB.

CANADA

BUILDINGS—LB & CA

▲ Burns & Dutton Concrete & Constr. Co. Ltd., 5441 1st St. S.W., Calgary, Alta., CA $8,000,000, SHOPPING CENTER, west side of McLeon Trail, CALGARY, ALTA. Chinook Shopping Centre Ltd., 1209 Prospect Ave., Calgary, Alta. J. C. Page, 549 Eastcott W., Vancouver, B.C., archt. Awarded May 2.

▲ Thomas Fuller Constr. Co., 199 Richmond Rd., Ottawa, Ont., LB $2,660,000 (17 bidders) 2 story, bsmnt. 131x206 ft. at rear, with fourth and fifth floors about 35x150 ft. rein.-con. fdn. and frame, steel beams, rein.-con. constr. throughout face brick walls, Central HEATING PLANT, Riverside Dr., OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids May 21. CD 5/12.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲† Peter Kiewit Sons Co. of Canada Ltd., 1035 Beaumont St., Montreal, Que. CA $5,529,980, constr. 100-units and operational facilities) HOUSING, Goose Bay Air Base, GOOSE BAY, LABRADOR. U. S. Eng. Dist., Eastern Ocean Div., 346 Broadway, New York 13, N. Y. U. S. A. Bids Apr. 30. CD 5/13, under LB.

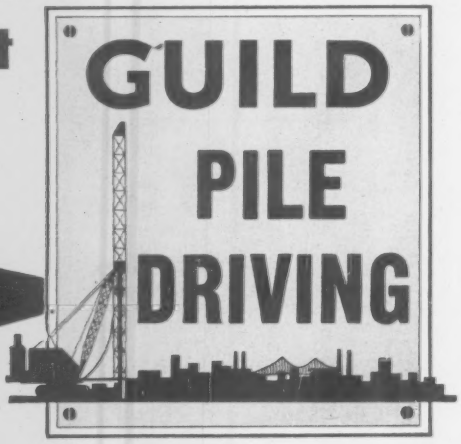
FOREIGN

▲ Brown & Root, 4100 Clinton Dr., Houston, Tex. and Utah Constr. Co., 144 East Broadway, Salt Lake City, Utah. LB Est. $25,000,000-$35,000,000 constr. King Phumiphol Dam (Yanhee Dam) and power plant on Ping River, THAILAND. Royal Irrigation Dpt. of Thailand, Bangkok, Thailand. Bids Apr. 14. CD 1/22.

(Proposal Advertisement see pp. 121 to 123)

Throughout the Country

THIS SIGN...



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NO matter where you go in the United States you'll note more and more structures are being built on firm-anchored Cobi Piles driven by C. L. Guild Construction Co., Inc., specialists in the use of Cobi Piles. There are many, many technical reasons for specifying Cobi Piles by Guild for any type of structure. And there are many, many good business reasons, too, since Cobi Pile economy has been proven on hundreds of buildings, piers, and bridges throughout the country.

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Call C. L. Guild for estimates on any type of piling job anywhere in the country.

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RUST-OLEUM®

STOPS RUST!®

and matches ORIGINAL EQUIPMENT

COLORS

Distinctive as your own fingerprint. Accept no substitute.

How much does rusty equipment cost *you?* With Rust-Oleum, you STOP RUST—and you match original equipment colors, too, for long-lasting protection! Words are fine . . . but we want you to actually take the brush and see for yourself how *easy* it is to use Rust-Oleum . . . see how it dries to an *attractive, high-gloss finish* that resists rain, snow, sun, fumes, heat, road grime, and blowing dust and sand. And the same formula can be applied by hot or cold spray. Just check off the color you desire on the coupon and attach it to your business letterhead for a FREE TEST SAMPLE. No cost or obligation.

Your Rust-Oleum Industrial Distributor maintains complete stocks for immediate delivery.

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CHECK COLOR TO MATCH YOUR EQUIPMENT

RUST-OLEUM CORPORATION, 2556 Oakton St., Evanston, Ill.

Please send me a FREE TEST SAMPLE in the color checked:

- ☐ 769 Damp-Proof Red Primer
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ALLIS-CHALMERS
- ☐ H-1 Orange

J. I. CASE
- ☐ H-6 Flambeau Red
- ☐ H-28 Desert Sunset

CATERPILLAR
- ☐ H-4 Yellow

JOHN DEERE
- ☐ H-3 Green
- ☐ H-10 Yellow
- ☐ H-11 Red

MASSEY-HARRIS
- ☐ H-18 Yellow
- ☐ H-19 Red
- ☐ H-23 Straw Yellow

OLIVER
- ☐ H-12 Green
- ☐ H-13 Red
- ☐ H-14 Orange
- ☐ H-22 Yellow

EUCLID
- ☐ H-9 Green
- ☐ H-27 Light Green

FORD
- ☐ H-20 Gray
- ☐ H-21 Red

MINNEAPOLIS-MOLINE
- ☐ H-16 New Prairie Gold
- ☐ H-17 Red

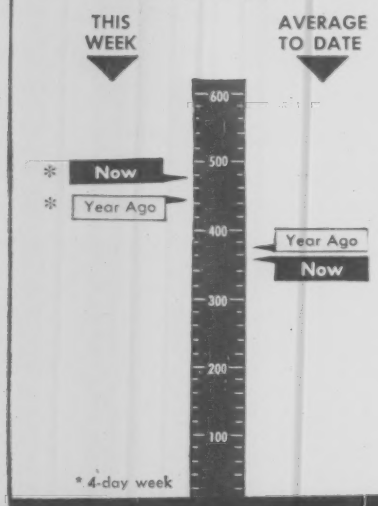
FERGUSON
- ☐ H-7 Gray

INTERNATIONAL
- ☐ H-2 Red
- ☐ H-8 Blue
- ☐ H-15 Green

Construction Scoreboard

ACTIVITY THIS WEEK

Contract Awards
Millions of Dollars

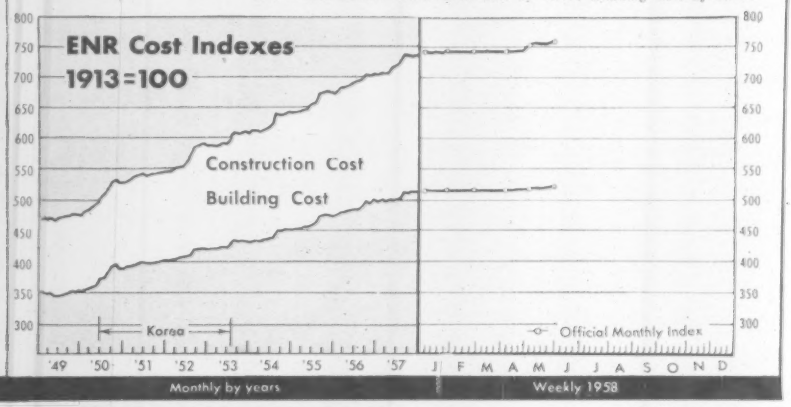


COST INDEXES AS OF NOW

ENR INDEXES (1913=100), 20-cities' average	Week of May 29 1958	% Change from 1958	% Change from 1957
Construction Cost	757.31	+0.76	+5.0
Building Cost	521.09	+0.48	+3.4

* Official monthly index for June 1958.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.680; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 23 wks 1958 millions	Chge '57-'58 %
All Heavy Constr.	$481.3	$8,209.6	−1
Private	171.7	3,710.3	−5
Public	309.6	4,499.3	+2
State & Municipal	173.9	3,347.9	+6
Federal	135.7	1,151.4	−9
By Type of Work			
Public			
Waterworks	10.5	139.9	−23
Sewerage	12.8	254.0	+15
Bridges*	11.7	228.3	−28
Highways	64.9	1,293.4	−1
Earthwork, Waterways	18.2	424.8	−24
Buildings, Excl. Housing	78.5	1,158.2	+19
Housing	24.6	489.3	+60
Unclassified	88.7	520.0	−6
Private			
Mass Housing	74.8	1,685.6	+23
Commercial	48.7	941.3	+23
Industrial	44.7	870.0	−44
Unclassified	3.2	204.8	−9

* Includes private bridges.

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

NEW CAPITAL FOR CONSTRUCTION

	Week of May 29	Cum. 22 wks 1958 millions	Chge '57-'58 %
Corporate Securities	$47.0	$2,421.1	−8
State and Municipal:			
All Except Housing	160.8	3,210.3	+30
Housing	...	20.3	−51
Federal Loans	3.1	80.8	−20
Federal Aid	...	....	...
Total Nonfederal	$210.8	$5,732.5	+4
Federal Appropriations:			
Projects in U. S.	...	$603.2	...
Outside U. S.	...	....	...
Total New Capital	$210.8	$6,335.7	+15

WAGE RATES, 20-cities average

	Jun. 1958	% Change from May 1958	% Change from Jun. 1958
Common	$2.440	+1.2	+6.7
Skilled (average 3 trades)	3.682	+1.0	+4.9
Bricklayers	3.936	+1.3	+4.2
Structural Ironworkers	3.677	+0.5	+5.1
Carpenters	3.434	+1.4	+5.5
Equipment operators (average three types)	3.359	+0.7	+6.3

MATERIAL PRICES, 20-Cities average

Structural Steel (average 3 mills), per cwt	5.275	0	+5.5
Lumber, 2x4 Fir, per M fbm	112.68	0	−2.3
Lumber, 2x4 Pine, per M fbm	100.25	+0.2	−1.5
Cement, bulk, per bbl	3.956	−0.4	+1.8
Sand, per ton	2.501	+0.2	+2.1
Ready-mixed concrete, per cu yd	13.858	+0.1	+2.1
Gypsum sheathing, ½"x2'x8', per Msf*	62.792	0	+0.1
Fiber board sheathing, ½" sq. ed., per Msf*	71.395	0	−0.5
Mineral wool insulation, 3" batts, per Msf*	70.513	−0.4	−2.3
Crushed stone, 1½", per ton, CL	2.838	0	+0.3
Concrete blocks, sand/gravel, 8"x8"x16", each*	0.228	0	+0.9

	May 1958	Jun. 1958	May 1957
Brick, common per M	37.980	+0.3	+1.5
Lime, hydrated finishing, per ton, CL	38.596	0	+6.3
Structural clay tile, 3x12x12", per M, 2,000 up*	185.308	0	+2.7
Vitrified clay sewer pipe, std 12", per ft	1.260	0	−4.8
Concrete sewer pipe, 12", per ft	1.290	0	+11.8

* Delivered, trucklots

ENR INDEX REVIEW

1957	Construction Cost 1913=100	Construction Cost 1949=100	Building Cost 1913=100	Building Cost 1949=100	Volume 1913=100	Volume 1949=100
Jun	721.36	151.22	504.17	143.32	588	170
Jul	724.15	151.81	506.62	144.01	587	170
Aug	738.63	154.84	516.90	146.93	528	153
Sep	737.78	154.66	516.12	146.71	466	135
Oct	737.14	154.53	516.78	146.90	506	146
Nov	737.43	154.59	516.81	146.91	457	132
Dec	738.08	154.73	516.27	146.76	357	103
1957 Average	**723.85**	**151.74**	**508.67**	**144.59**	**517**	**150**
1958						
Jan	743.44	155.85	516.79	146.90	368	106
Feb	743.77	155.93	515.78	146.61	446	129
Mar	744.41	156.06	516.09	146.69	520	150
Apr	745.78	156.34	516.61	146.85	585	169
May	751.57	157.56	518.48	147.38	674	195
Jun	757.31	158.77	521.09	148.12	...	...

Accept this

L-W

CHALLENGE

...to UP your

PROFIT MARGIN

Yes... prove to me that L-W POWER-*Flow* Adams Model 660 does more blade work at less cost, than any other grader. Phone me on or about ..... (date) at ..... (number) to arrange for a demonstration on one of our jobs.

Name ..... Position .....

Company .....

Address .....

City ..... State .....

(Fill out and mail to your LeTourneau-Westinghouse Distributor)

Let us prove to you that

L-W POWER-*Flow*® 660 does more blade work ... faster ... at less cost

than any other grader

In extensive field tests... and through the experience of owners all over the world... we know that L-W POWER-*Flow* Adams† Model 660 grader will do more blade work, faster, and at less cost than *any* other grader, of *any* size, *any* price. We believe this grader will do the same for you.

This 190 hp grader, with torque-converter drive and constant-mesh transmission, provides instant power to match any load. It has infinite gear ratios, with forward speeds to 27.4 mph and reverse speeds to 24.4 mph. Its balanced construction distributes weight for maximum traction and stability. It has the built-in Go-power to do more work, in less time, at lowest cost.

In your effort to UP your profit margin, you will save money by replacing your older, less efficient graders with modern, high-speed POWER-*Flow* 660. It will cost you nothing to see this grader *in action* on one of your jobs. Fill out and mail the above "request for demonstration" to your LeTourneau-Westinghouse Distributor.

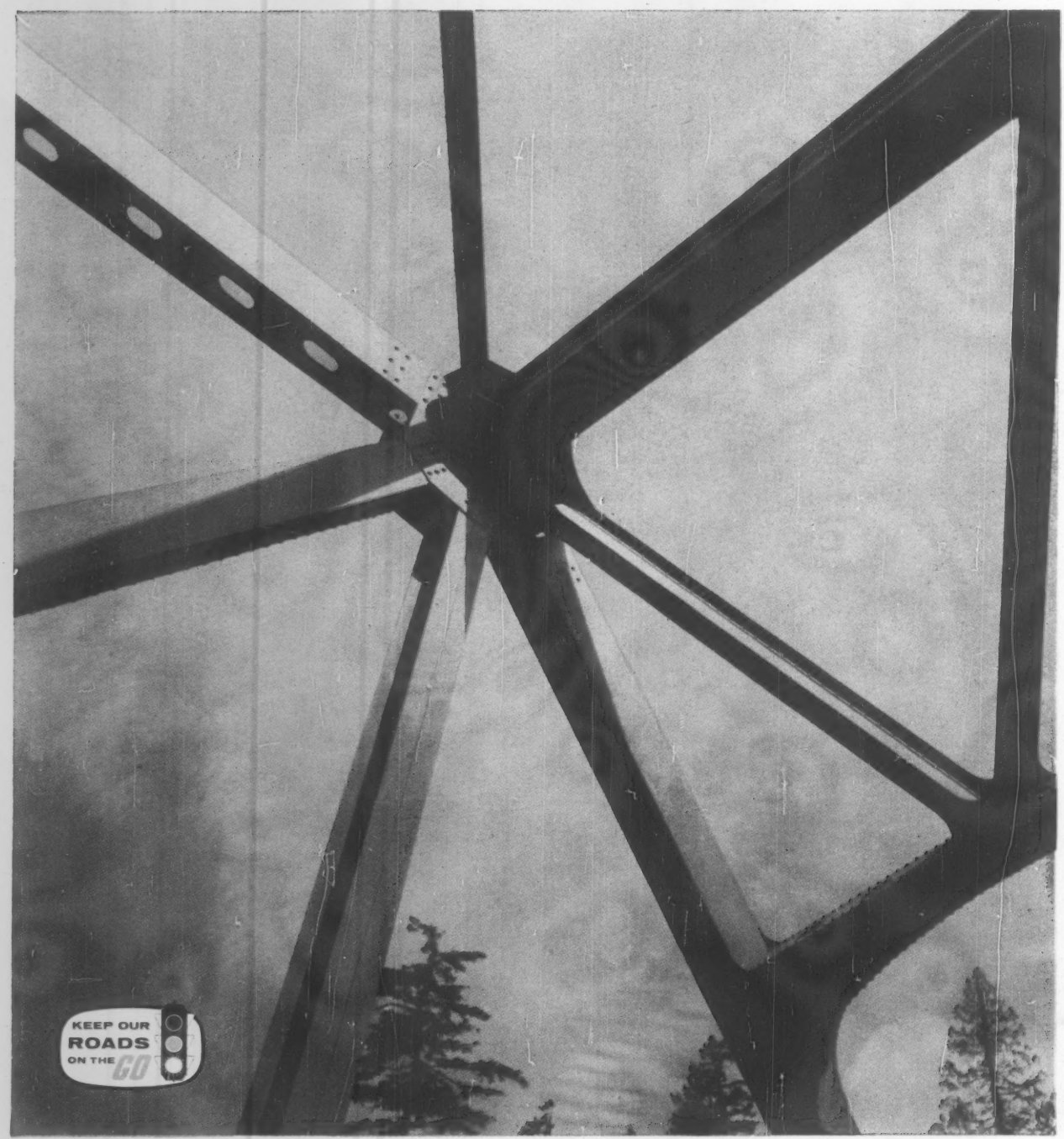
†Trademark G-1931-DC-1

LETOURNEAU-WESTINGHOUSE COMPANY PEORIA ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

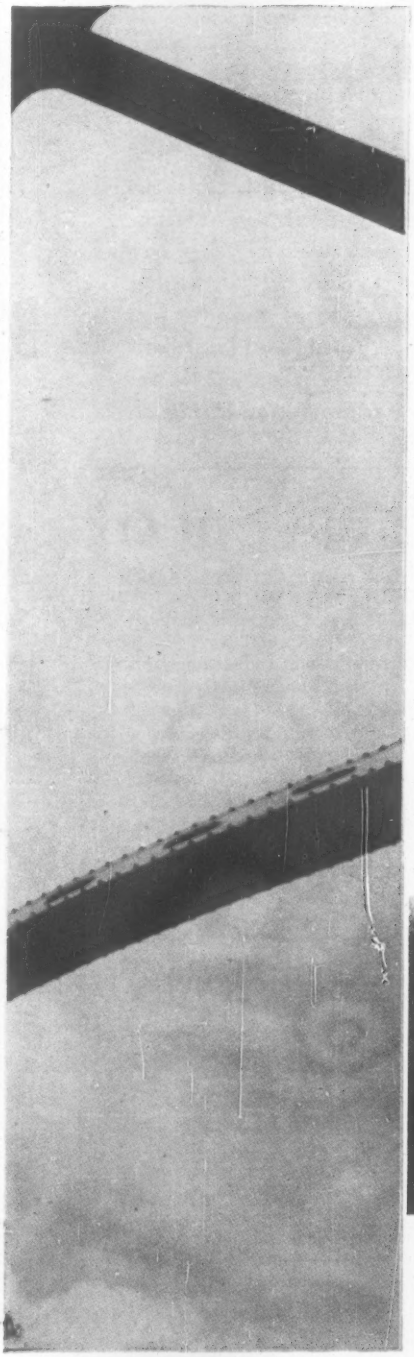
WHERE QUALITY IS A HABIT

Bridge designers save



The 1,020′ Agate Pass Bridge is of through cantilever truss construction, built with 1,561 tons of steel. 650 tons are USS COR-TEN Steel, a high-strength low-alloy steel that eliminated 300 tons of dead weight and saved $87,000 in total steel costs.

$87,000 with USS COR-TEN Steel



in the Agate Pass Bridge

WHEN YOU BUILD with a stronger steel, you need less steel. That's why this bridge was built with USS COR-TEN Steel chords, floor beams, diagonals and verticals. Because COR-TEN Steel is 50% stronger than structural carbon steel, the members are thinner. According to estimates by the State of Washington, Dept. of Highways, COR-TEN enabled a total weight elimination of 300 tons of steel—an $87,000 saving.

USS COR-TEN Steel has a minimum yield point 50% higher than that of structural carbon steel, and in thicknesses of ½" and under it meets all the requirements of ASTM Specification A242 for High-Strength Low-Alloy Steels. On this bridge, the COR-TEN Steel members are about one-third lighter than carbon steel would be if used in the same locations. Dead weight was materially reduced, freight costs were lower, and construction was easier. And, since COR-TEN Steel has 4 to 6 times more resistance to atmospheric corrosion than carbon steel, the Agate Pass Bridge will stand up better under the corrosive salt air of this area.

For more information about weight-saving, economical construction with USS High Strength Steels—COR-TEN, TRI-TEN, and MAN-TEN—write for a copy of our "Design Manual for High Strength Steels," United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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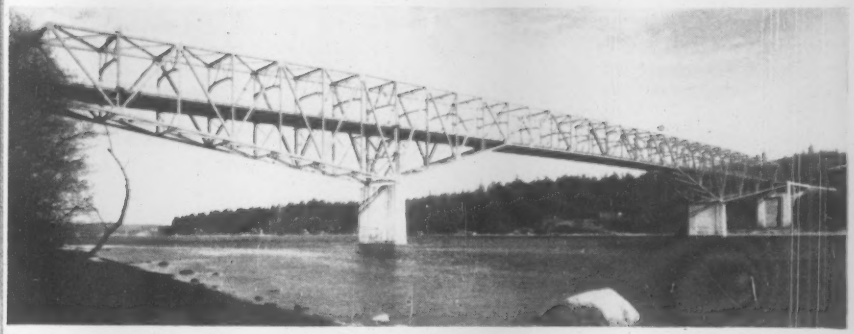
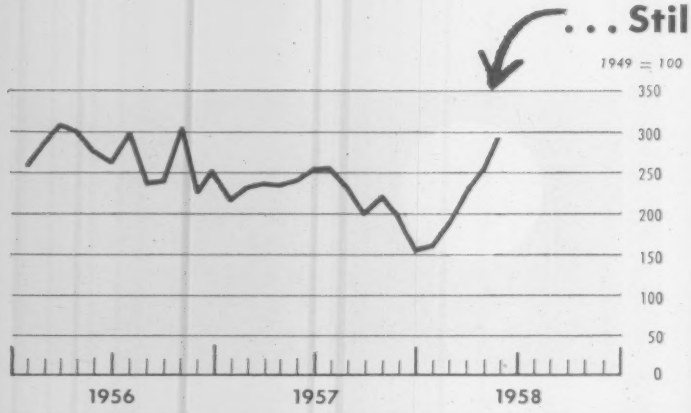


The Agate Pass Bridge · Owner: State of Washington · Designer: Department of Highways, State of Washington · Contractor: Manson Construction & Engineering Co. · Fabrication and Erection: American Bridge Division, United States Steel

United States Steel Corporation – Pittsburgh
American Steel & Wire – Cleveland
Columbia-Geneva Steel – San Francisco
Tennessee Coal & Iron – Fairfield, Alabama
United States Steel Supply – Warehouse Distributors
United States Steel Export Company

USS United States Steel

Heavy Construction Contracts



Awards during May climbed for fifth consecutive month this year. Total in May was 17% above April and 25% higher than same month last year. Total five month volume now is only 2% below same period last year.

Heavy Construction Upturn Gains Speed

Heavy construction contract awards climbed again in May to score the fifth consecutive monthly increase this year. The upsurge pushed contract volume reported to ENR to the highest figure recorded since last October. It was also extremely close to the record volume in December 1950.

Awards for the month of May hit $2.3 billion, only 4% under the 1950 all-time high for a month—$2.4 billion, half of which was for the Savannah River atomic energy plant.

On a weekly average basis, May volume was 17% above April and 25% above May 1957. Moreover, it was a record for a May month. The total pulled cumulative 1958 volume—$7.2 billion—to within 2% of last year's same period. At the end of March, total awards were 16% behind the comparable 1957 period and at the end of February they were 21% behind.

Public works was primarily responsible for May's gain. Private work held about even with April. All major types of private work except mass housing increased in May over April. Commercial work continues ahead toward a new record high and industrial building showed more strength in May, although volume is still low compared with the 1955 and early 1957 period.

Mass housing, although showing no month-to-month gain, still has pep and is 45% ahead of May 1957.

Public works, as expected, is the strong element, with waterworks, sewerage and public buildings higher.

Engineering Construction Contracts—May '58

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000.

Five Weeks—Thousands of Dollars (000 Omitted)

	May, 1958							U. S. Cumulative Five Months		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1958	1957	Change '57 to '58	May 1958
Public Works											
Waterworks	5,177	3,264	4,741	3,885	6,275	19,792	**43,134**	129,236	180,338	−28	5,113
Sewerage	2,154	18,089	4,998	16,041	12,907	7,173	**61,422**	241,102	189,195	+27	5,092
Bridges	6,358	15,086	6,058	10,666	12,923	8,264	**59,355**	208,532	282,157	−26	4,627
Earthwork and waterways	22,052	107,878	6,399	2,597	28,187	9,056	**176,169**	406,429	543,826	−25	3,264
Streets and roads	23,574	45,232	57,163	103,413	82,213	30,619	**342,214**	1,228,655	1,228,311	0	20,502
Public buildings, residential	10,367	26,720	20,726	14,150	30,676	21,379	**124,018**	464,864	303,640	+53	9,680
Other public buildings	24,474	122,470	26,690	39,737	41,918	95,624	**350,913**	1,079,526	928,801	+16	24,553
Unclassified	25,488	21,148	32,713	12,369	45,202	46,192	**183,112**	431,380	545,526	−21	12,657
Total public	119,644	359,887	159,488	202,858	260,361	238,099	**1,340,337**	4,189,724	4,201,794	−0.3	85,578
Federal government (included in above classifications)	56,901	101,135	55,914	23,347	98,230	74,333	**409,860**	1,015,623	1,236,487	−18	30,774
Private											
Bridges	.....	8,108	.....	.....	78	.....	**8,186**	8,186	1,220	+571	400
Industrial buildings	11,414	88,784	14,215	35,837	21,636	7,294	**179,180**	825,000	1,430,931	−42	75,929
Mass housing	40,738	153,787	23,100	128,925	81,031	17,119	**444,700**	1,610,767	1,286,217	+25	28,322
Commercial buildings	13,656	155,192	18,246	40,423	57,080	9,321	**293,918**	892,706	740,448	+20	20,760
Unclassified	610	412	2,282	11,815	17,595	14,640	**47,354**	201,892	217,567	− 7	8,172
Total private	66,418	406,283	57,843	217,000	177,420	48,374	**973,338**	3,538,551	3,682,383	− 4	133,613
Total Engineering Construction:											
May, 1958—5 weeks	186,062	766,170	217,331	419,858	437,781	286,473	**2,313,675**	.....	.....	.....	219,191
April, 1958—4 weeks	80,804	510,495	205,338	248,320	312,159	226,189	**1,583,305**	.....	.....	....	156,471
May, 1957—5 weeks	125,492	522,261	166,012	330,710	371,197	341,056	**1,856,731**	.....	.....	.....	187,681
Five Months—1958	494,797	2,245,444	928,815	1,434,126	1,520,296	1,104,797	.....	7,728,275	.....	− 2	695,085
Five Months—1957	507,155	2,012,192	919,748	1,544,131	1,460,902	1,440,040	.....	.....	7,884,177	.....	745,025
% Change '57 to '58	−2	+12	+1	−7	+4	−23	.....	.....	.....	.....	−7

New Wage Increases Push ENR Cost Indexes Higher

Large wage increases in many cities raise June construction and building costs to record highs, as measured by ENR's 20-cities Construction Cost and Building Cost Indexes. Weakening cement prices in some parts of the country provide the only factors offsetting increasing upward pressure on costs from higher wage rates and stable or rising lumber prices.

ENR's Construction Cost Index for June stands at a new high of 757.31, 0.76% higher than the May value of 751.57 and 5.0% over a year ago. The June Building Cost Index, also at a record level, is 521.09, up 2.47 points or 0.48% over the May reading of 518.62 and 3.4% higher than last year's value.

Most of the June wage hikes are for skilled labor. The biggest boost reported is for New York bricklayers, receiving a 55-cent-plus package deal over the next two years. The new contract provides for a 20-cent hike June 1, 1958, and deferred increases of 20 cents on January 1, 1959, 15 cents on June 1, 1959, and an additional 1% for the pension fund on January 1, 1959.

Portland cement prices in a few cities are weakening as dealers pass along freight rate reductions to contractors. The price of bulk cement per barrel is down 5 cents in Seattle, 25 cents in Baltimore and 16 cents in New York.

Construction Markets

Santa Clara County, Calif: An On-the-Spot Report

In California's Santa Clara County, prune growers and missile makers find peaceful coexistence possible. And the construction industry finds it profitable. Though recession has made its dent, construction activity in this spot at the southern tip of San Francisco Bay is healthier than some other sections of the country.

On the books right now are construction projects totaling over $275 million—highways, homes, schools, industrial, commercial and government buildings—the Santa Clara County Contractors and Home Builders Association reports.

The county has seen the greatest influx of population and industry since World War II. Through migration and natural increase, the county adds 100 people every day, it is estimated. San Jose, the major city, has 147,085 people, 54% more than in 1950. The county as a whole, now with 547,000, has grown 88% since 1950. Planners forecast that 1 million people will live on its 1,304 sq mi by 1970.

Santa Clara County has good bait for industry: two main rail lines, excellent highways, port facilities and space. Water supply will be adequate once some ambitious dam projects are completed.

Industry has heard the call, too. The county still has its old fruit-growing and food-processing industries. But now these have company. Some of the newcomer companies are IBM's Data Processing Center; Food Machinery & Chemical Corp.'s manufacturing plant; Ford Motor Co.'s auto assembly plant; and the Polaris Missile System Facility of Lockheed Aircraft Corp. Some 20 electronics and research firms, both large and small, also are located in the county, and there are hundreds of service businesses.

This diversification has been good for the county's growth. Yet the recession has not wholly overlooked this section of the bay area. About 9.3% of the labor force was unemployed in April, compared to 6.1% in April of 1957. However, construction employment was about level with last year. Some 13,500 people had construction jobs in April compared with 13,300 a year earlier. Heavy spring rains have held activity below expectations, and the Home Builders Association expects employment to rise to 15,000 soon.

Though the value of building permits issued is down from last year, enough big projects are started or ready to go to make the county seem like a contractor's paradise. Here is a sample:

Heavy and light industry construction worth $60 million is either under contract or ready for contract. The major project is for Lockheed, where $9.2 million will be spent—$5.5 million for the Navy's Polaris building and $3.7 million for additions to other buildings. Another $2.1 million in industrial construction is going on at Stanford Industrial Park on land leased from the university. Many other industries in the county are planning expansions.

The state budget earmarks $20 million for highway construction, including right-of-way purchase, in the county. Some $14.9 million will be spent to add four freeway sections to the network of roads already lacing the county. A $6 million freeway contract currently is under way and will be finished later this year.

New construction and remodeling at San Jose State College will cost $23.1 million. Work on 11 new buildings costing $11.4 million will begin this year. Another $11.1 million of buildings are in preliminary planning and will be started during 1959-60.

The first stage of Stanford Medical Center, costing $15.5 million, has been put under construction. This includes the $8 million Palo Alto and Stanford hospitals.

A $21 million, 1,000-patient Veterans Administration Hospital is under way at Palo Alto.

School construction is increasing by 7% a year. The San Jose Unified School District has started a $11.5 million, five-year building program. Construction on $4 million worth of schools will begin this year. Other school districts have not completed their plans for next year but currently have in progress school construction costing nearly $10 million.

Homebuilders will put up 14,000 houses in the county this year, the Builders' Association says. Right now, 87 subdivisions are being built. Both Federal Housing Administration and Veterans Administration money is available at par, builders report, and the market will be competitive this year.

With the county's population zooming, local government services are always needed. This week, voters will pass on a $23.7 million bond issue. Funds are intended for an $11 million civic center and other facilities. If the issue is approved, it means more jobs and Santa Clara County should continue to be a bright spot in construction.

"Memphis" Won't Halt Gas Plans

Pipeline companies are obtaining rate boosts and planning construction despite court decision

The natural gas industry's plans for almost $2 billion in construction this year may not be seriously altered by the "Memphis decision," it now appears. Two recent surveys show that most of the companies have decided to go ahead with their expansion programs. Many found the prior approval of rate increases required under the Memphis decision easier to get than had been expected.

The change in rate-fixing procedure was handed down by a U. S. Circuit Court of Appeals last November. Until then the Federal Power Commission had allowed pipeline companies to put rate increases into effect before approving their legality. The rate money collected was held aside and returned if the FPC ultimately refused the increase. The November ruling, on an appeal by the Municipal Gas Co. of Memphis and another company, ruled that no rates could be changed until the company had obtained agreement of its customers to the new rates.

Expansion would be harder to finance, the industry saw, if a single customer could block a rate increase that would make the expansion profitable. Construction programs were hastily revised. Last December, Pacific Northwest Pipeline Corp., Natural Gas Pipeline Co. of America and Colorado Interstate Gas Co. decided to postpone a $182 million transmission project from the Rockies to the Chicago area. Later, Tennessee Gas Transmission Co. announced it had cut back a planned $150 million construction program by 40%.

Industry opinion was virtually unanimous in calling the new procedure unworkable, and an appeal of the Memphis decision was carried to the U.S. Supreme Court. The court has agreed to review the decision, but at its leisure. It now appears that the earliest hearing likely is late in the fall.

• **The situation brightens**–Since the deep gloom of midwinter, however, a change in the industry's climate of opinion has taken place. One barometer is the annual survey of the gas industry's planned expenditures made by the American Gas Association. Last year it reported that the industry planned to spend $1.97 billion on expansion in 1958. Though the current survey is only 59% completed, the AGA is now willing to predict that actual 1958 expenditures will be as forecast a year ago.

Here's where the industry will spend its money, according to the AGA:

Production (including drilling) and storage facilities, $247 million.

Transmission, $832 million.

Underground storage, $67 million.

Local distribution facilities, $739 million.

General expenditures (includes office construction, etc.), $92 million.

The second indicator of the industry's rising optimism is a poll taken recently by Ford, Bacon & Davis, New York engineers and consultants. The firm estimates that several of the gas companies planning expansion will put their programs into effect during the next few months. But William B. Poor, vicepresident of the firm, said that though he believed the situation had brightened considerably in recent weeks he was not quite so optimistic as the AGA.

"The men in these companies are making their plans from day to day," he told ENR. Actual expenditures during 1958 may fall between one-half and two-thirds of the AGA estimate, he asserted.

"The Memphis decision has caused many hardships. Just one customer, like the city of Denver, for instance, by not agreeing to a rate increase sought by Colorado Interstate Gas Co., can hold up an expenditure of millions of dollars," he said.

Mr. Poor cited the experience of Southern Natural Gas Co. to illustrate the changing outlook in the industry. The firm recently did what had seemed impossible–negotiated rate increases with all of its 93 customers. With this accomplished the company decided to press on with its three-year, $110 million expansion. Southern Natural's expenditure in 1958 is now estimated at $24-30 million, double the amount planned earlier in the year.

Other companies that have negotiated rate increases and are moving ahead with construction programs, Mr. Poor said, include Texas Gas Transmission Co., Michigan Wisconsin Pipe Line Co., Texas Illinois Pipe Line Co., National Gas Pipe Line Co. of America, Tennessee Gas Transmission Co., and Transcontinental Gas Pipe Line Co.

• **"Memphis" still under fire**–The Memphis decision is not getting off the hook, however. Despite part of the industry's success in obtaining rate adjustments, the new procedure is still unworkable and some firms will not carry out expansions, Mr. Poor told ENR. The only reason for the success of some companies, he said, "is the tremendous demand for natural gas in all parts of North America. House-heating restrictions are still in force in many parts of the country, and nearly all utilities are limiting both commercial and industrial customers in number and in volume of gas.

Mr. Poor saw anti-recession value in the gas industry's recent reverse of field. "The nation's economy as a whole will certainly be affected," he said, "because millions of dollars have literally been lying around waiting to be spent. The question has never been whether or not the money will be spent, but when it was going to be spent."

Denver Acts to Speed Its Urban Redevelopment

Denver's City Council, in a move to accelerate its urban renewal program, unanimously approved a measure giving the Urban Renewal Authority the power to borrow money without a referendum. The money borrowed would be repaid by federal funds received for land acquisition in the city's redevelopment program.

The council's approval came after Robert Cameron, head of the sanitation division of the Denver Health Department, reported that 1,100 housing units of 10,000 inspected by his section in the past two years were found to be unfit for human habitation.

He said inspectors also discovered hazardous or insufficient electrical wiring in 54% of the structures checked; dangerous or inadequate heating facilities in 44%; substandard floors, ceilings and walls in 40%; hazardous water heating equipment in 33%; no bath facilities in 20%, no kitchen sinks in 20%.

George Nez, planning director, said that rehabilitation is necessary in a large section of central Denver.

Big Bond Sales to Boost Michigan Roadbuilding

Michigan has sold $100 million in bonds to finance construction of 245 miles of primary and secondary roads. The bonds went to a syndicate of 270 banking houses for 3.3% interest.

About 180 miles will be multiple-lane highways costing about $88 million. The remaining 65 miles are of two-lane roadway and will cost about $12 million. All are part of the federal-aid system.

(*B&F continued on page 117*)

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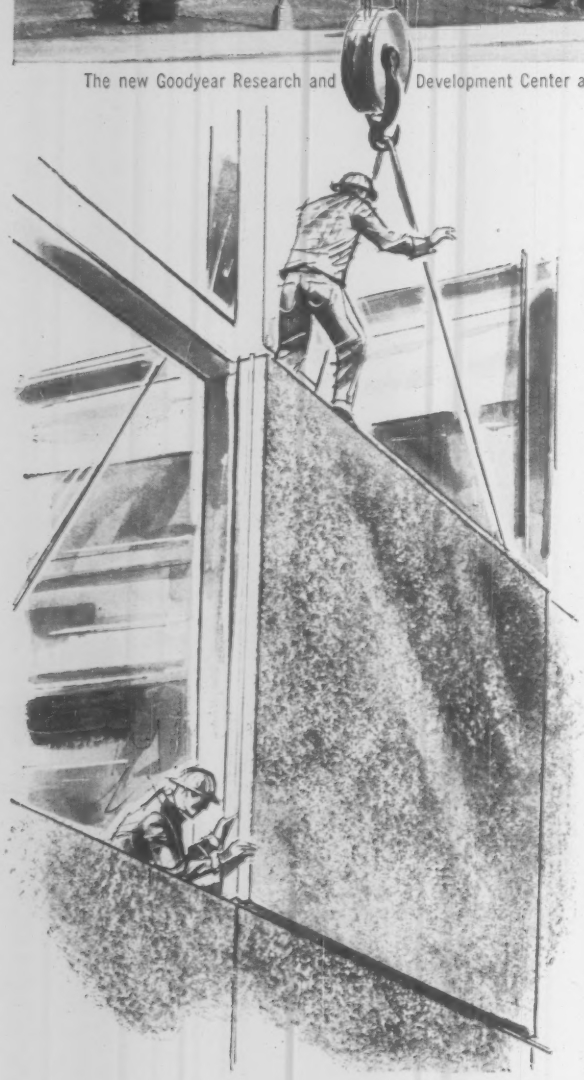

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A WIDE VARIETY OF TEXTURES is available in low cost Marietta precast concrete wall panels from a handsome broomed finish to colorful exposed aggregates of marble, quartz or granite surpassing the appearance of costly solid cut stone. All finishes are permanent and non-fading . . . will not become dulled by weather.

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Home Sales Method Threatened

Homeowner brings court action to prevent tract builder from using model houses for sales promotion

A homeowner in New Castle County, Del., has drawn a new weapon against developers of a mass housing tract in that county. Unless it is blunted by a court or zoning body decision, a fatal blow could be dealt in that area to one important method of home merchandising as it is practiced today—the model or sample house. It also could lead to similar actions elsewhere in the nation as residents move to stem rapid community growth.

The homeowner, Carl D. Shields, has entered suit in a Court of Chancery seeking to prevent the use of a model house by a homebuilder. Mr. Shields contends that a model house used to sell other structures in a housing development is a commercial operation within a residentially-zoned site and therefore a model house is not in compliance with zoning regulations. Defendants in the suit are Welshire Development Co. and W. Percival Johnson & Son, Inc.

The issue first was brought to light at a special but informal hearing before the New Castle County Board of Adjustment. At that hearing, Mr. Shields asked that the board void the building permit for three proposed model houses to be located on the Welshire tract about 80 feet from his home.

Mr. Shields was informed at that time that such a request would have to be advertised and heard at a formal session of the board. But, Tyson F. Sartin, a member of the board, pointed out to Mr. Shields that even were the board to uphold him, a builder possibly could obtain a variance from the board that would permit the operation of a model house.

At that time, Mr. Shields announced that no matter what action the board took he would bring suit in court.

• **Builders aroused**—Informed of the scheduled hearing, several builders attended the session, while others were represented by their attorneys. They heard Richard J. Baker, attorney for the Johnson firm, tell the board what all knew to be a vital selling procedure—that a sample house is an accessory use to a housing development.

Because the hearing was an informal one, no action was taken by the board on Mr. Shields' request. However, despite the suit filed by Mr. Shields, his original request that the building permits for the model houses be revoked still remains in the hands of the board.

A board decision is anticipated in one or two weeks.

• **Pattern of conflict**—The Delaware case is among the most recent examples of conflict between homebuilders on one side and residents and communities on the other.

The attempts of communities to block new housing developments stem from the almost explosive growth of the suburbs in the post-war era. New houses sprang up by the hundreds in small communities and the call for new services and additional educational facilities strained existing town budgets and pushed tax rates higher.

It appeared to residents that one way to put a stop to growing tax burdens was to stop home construction. Some communities depended on upzoning and arbitrarily ordered lot sizes that would preclude the building of low cost housing. In some sections of the country, lot requirements of one to four acres are not unusual.

Other towns ordered that builders should pay in advance for the cost of the new schools that the governing bodies felt would be required to serve the new families that would buy houses. These charges have ranged as high as $300 or $400 per new proposed house unit. These arbitrary levies have been ruled illegal in most cases, but the zoning battles still continue, both in and out of court.

Among the defeats to communities was one in New York state. A court ruled that rationing of building permits for new houses is illegal (ENR Oct. 31, 1957, p. 17).

Chemical Firm Chartered To Build Arkansas Plant

A new corporation, Arkansas Louisiana Chemical Corp., has been chartered in Delaware to finance construction of a chemical plant at Magnolia, Ark. The plant will process propane, butane and other natural gas products. The charter also authorizes the firm to operate railroads and ship lines, own and distribute natural gas and electricity, engage in all types of construction, and refine and manufacture chemicals and synthetic materials.

President of the new company is W. R. Stephens, president and chairman of Arkansas Louisiana Gas Co.

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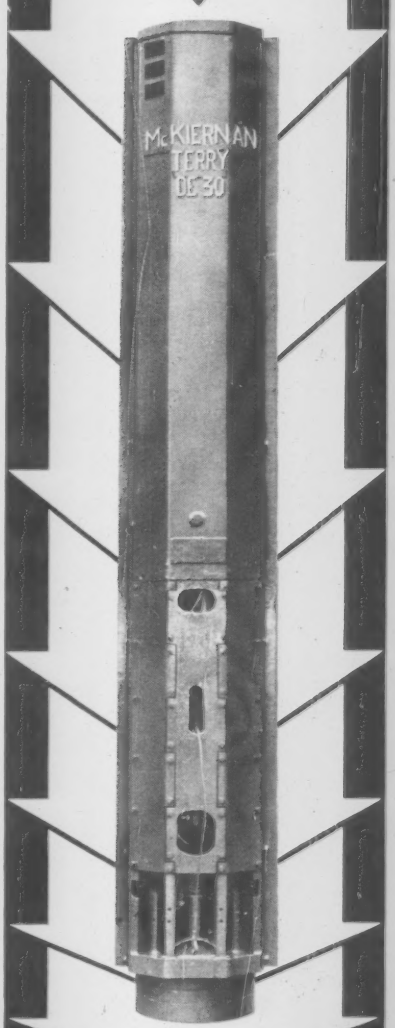

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Stiff Bargaining in Two Areas

Cleveland homebuilders shut down—strike continues; Jersey building contractors lose out to ironworkers

A construction shutdown that has idled more than 10,000 building tradesmen in Cleveland, Ohio, spread last week to the homebuilding industry.

Work on an estimated 5,000 houses in a four-county area was halted by the Home Builders Association of Greater Cleveland because of the "chaotic conditions." The building industry has been deadlocked in construction union collective bargaining negotiations with the Building Trades Employers' Association and the Cleveland Chapter of Associated General Contractors. (These two groups are bargaining jointly with the Building Trades Council that embraces all crafts.)

The Cleveland situation, like the current bargaining approach of the Building Contractors Association of New Jersey, has attracted national interest because of the determined efforts of the BTEA and AGC to keep construction costs under control. According to the BTEA, it has become "a battle for survival" for many Cleveland contractors.

• **Cleveland deadlock**—Throughout the bargaining sessions that began in March, negotiating contractors have contended the time has come for cost reductions instead of wage increases. Accordingly, they countered initial union demands for a 25 cent wage boost for all trades by proposing for union acceptance a nine-point work practice code to increase productivity.

Just before the old contract expired on April 30, union demands were reduced to 10 cents, payable in two installments, and agreement on the productivity code seemed likely. Contractors offered 6 cents now plus a cost-of-living increase in November.

Asbestos workers then bolted the group bargaining, asking for 70 cents in wages and fringe benefits, and struck against the asbestos contractors. Relying on a Supreme Court case holding that a strike against one group is a strike against all in group bargaining, the BTEA contractors supported the asbestos employers with what the unions call a lockout, foreclosing the possibility of whipsaw action by the unions.

Although the asbestos workers called off their strike, no settlement has been reached and construction has remained at a standstill. Union demands have been upped to 19 cents and mediation efforts have failed.

Cleveland homebuilders are not participants in the BTEA-AGC bargaining. As in several other cities, they negotiate separately.

• **New Jersey setback**—Meanwhile, the Building Contractors Association of New Jersey, which has been just as adamant in holding the line on wages, last week suffered the kind of setback Cleveland contractors have been trying to avoid.

Rigging contractors, who normally negotiate within the BCA framework, settled with northern New Jersey ironworkers for a package increase of 54 cents spread over three years.

Up to this point, the building contractors, who have voiced repeated demands for a general wage freeze, have been fairly successful in holding current wage increases to a 5 cent level. In negotiations with several trades in a number of counties they have engaged in shutdown action in reliance on the same Supreme Court decision cited by the Cleveland group.

Under the ironworkers' new contract, union members who have been getting $4.66 an hour (including 3% welfare) will get a 15 cent wage increase each year, plus an additional 2% for pensions (formerly 3%).

More in line with BCA policy, however, Union County laborers last week accepted a three-year contract granting four 5 cent wage boosts, plus a 10 cent pension contribution. Bergen County bricklayers also settled for 30 cents in a three-year contract—5 cents in wages now, 5 cents in welfare on Nov. 1, 10 cents in wages May 1959, and 12 cents (including 2 cents for additional fringe benefits) in May 1960.

Congress Extends Jobless Pay

Congress cleared the way last week for state use of federal funds to continue unemployment insurance benefits to jobless workers who have used up their available benefits under existing state laws.

Following collapse of labor-backed efforts to liberalize a previously passed House bill, the Senate approved the additional benefits measure without dissent and sent it to the White House.

Under the bill, each state may, at its option, borrow federal funds to extend jobless pay benefits for a period half again as long as the state's present payment period. In a state that has a maximum payment period of 26 weeks, for example, the duration period of additional benefits will be 13 weeks. Amount of the weekly benefit payment will remain unchanged. Persons not now covered by state law will remain ineligible for the new benefits.

It is estimated that some 2.6 million unemployed workers could be benefitted by the proposed law at a total cost of $640 million.

At the time of the Senate action, the Census Bureau announced that mid-April unemployment stood at 5,120,000; of these, 1,148,000 had been out of work for more than 15 weeks. According to the U.S. Labor Department, unemployment as of mid-May had stabilized in two-thirds of the nation's major labor areas but had increased in the other one-third. This put 86% of the areas in the "substantial labor surplus" category—highest percentage since the reporting system was adopted in 1951.

The new jobless pay measure, where states choose to act, will cover unemployed workers who have exhausted state benefits between July 1, 1957, and April 1, 1959. States are given four years in which to repay federal funds they draw.

The AFL-CIO, which would have preferred a federal law permanently upgrading all state unemployment compensation systems, said the legislation gives the appearance of action without accomplishing anything. The states have failed to act in the past, it said, because of unwillingness rather than inability to do so and the option contained in the bill leaves the problem "almost exactly" where it was before.

The AFL-CIO predicted that the new program will prove "utterly meaningless to millions of unemployed workers." It said that "only two governors have indicated that they could take advantage of the financial assistance this measure purports to provide without further action by their state legislatures." And, it added, "34 governors have formally indicated that action by their state legislatures would be necessary before they could implement the stated intentions of the measure."

Boycott Proposals Criticized

President of plumbers union calls legislative proposals to curb secondary boycotts a threat to union existence

Of all the legislative proposals for labor law changes now before Congress, those relating to secondary boycotts in the construction industry are among the most controversial.

Latest contribution to the long debate on the issue has come from Peter T. Schoemann, general president of the plumbers and pipefitters union. He has described President Eisenhower's proposals "as a studied effort to put unions in a legal straight jacket" and has called the recommended exemption of construction site activity from the boycott ban "a complete sham" from one end to the other.

The Administration boycott proposals would enlarge the general ban against boycotts by outlawing three practices that now escape the law: Inducing individual employees to strike or to refuse to handle certain products or materials; inducing an employer to refuse to deal with or handle the products of another; exacting an agreement either from workers or an employer not to do business with or handle the products of another. One of the Administration bills, however, would exempt from the present ban secondary boycotts at construction sites where both the primary and secondary employers are working.

• **Union busting?**—Mr. Schoemann said the general proposals would outlaw peaceful picketing, including all types used in union membership drives. The right of unions to protect their standards and to strengthen and extend union organization, he contended, would be destroyed.

His principal criticisms of the general proposals, as contained in a house organ report to union members are:

• Sympathy strikes and picketing in support of another union would be made impossible, and legitimate strikes could not be maintained effectively because even the posting of pickets to stop the flow of materials and supplies to the struck employer would become illegal as soon as the picket line is honored.

• Unions could no longer informally request of union contractors that they cooperate with the unions in an effort to protect and preserve union standards by not using nonunion products or dealing with nonunion employers.

• All hot cargo clauses—agreements not to handle nonunion or struck goods—would be invalid and any attempt to negotiate them would be illegal. Even the union's fabrication clause in its contract with National Constructors Association, Mr. Schoemann asserted, would be outlawed. (Under that clause, pipe fabricated off a job is to be done at union wage rates.)

Mr. Schoemann said he found little solace in the proposed construction site boycott exemption, which has been sought by the building trades to restore the right of organizational picketing in the construction industry. He considered the exemption proposal unlikely of passage and said even if passed it would not legalize an inducement to strike or exempt efforts to secure or enforce hot cargo clauses.

The latter point was raised two weeks ago by building trades President Richard Gray when he testified before the Senate subcommittee on labor. Mr. Gray said the exemption would not affect the present law as it applies to material boycotts or "any other off-site dispute." (Proposed exemption is based on the premise that neither a union general contractor nor a nonunion sub on the same job, for example, is a neutral party in a union dispute over use of nonunion men.)

• **Politics**—Mr. Schoemann also expressed a tactical fear of the Administration proposals, which have been referred to as a "middle of the road approach."

He predicted that Congress in an election year will publicly reject such extreme proposals as a national right-to-work law or a union anti-trust law and fall back on the politically safer and "seemingly less radical" proposals of the Administration.

Labor Groups Will Merge Despite Building Trades

Despite objections of the building trades unions, the Toledo (Ohio) Central Labor Union (AFL) has ordered its officers to effect an immediate merger with the CIO's Toledo Industrial Union Council.

The building trades have tried to stave off the merger until their jurisdictional conflict with industrial unions has been settled. The issue, which relates to the performance of construction work by production workers rather than by employees of outside contractors, has long been a stumbling block to labor unity.

Said the sponsor of the Toledo merger resolution: "We have sat back here two and a half years and stuck with your building trades while you tried to work out a merger. You opposed the state merger and now you are opposing this one. We feel it is time to get down to business."

Merger at the state level occurred last month, making Ohio the 37th state in which the AFL and CIO have joined forces. New state federation is the largest of labor's state central bodies (over a million members) and is the first to be organized in a big industrial state.

Union Damage Suits

Court rules federal law does not preclude right to sue a union for damages

The question of whether an employer who engages in a lockout exposes himself to a damage suit by nonstriking employees who are thrown out of work was raised in a U. S. Supreme Court case last week.

In a split decision, the court ruled that a nonstriking electrician who was kept from his job because of union mass picketing could sue the union for damages under state common law in a state court rather than pursue the more restrictive remedy of seeking back pay only through the National Labor Relations Board.

The decision is significant in three respects. It narrows rather than broadens the "no man's land" between the jurisdiction of federal and state courts in labor matters; it gives unions the alternative of complying with local picketing laws or facing financial penalties far more consequential than those involved in back pay suits; and it raises the question of whether employees thrown out of work by a lockout have any recourse against the employer.

The case arose at the Decatur, Ala., plant of a copper company, where Walter Reuther's union of United Auto Workers was on strike. Pickets prevented the complaining employee—a nonunion man—from getting to his job for five weeks. It was claimed that the union had engaged in mass picketing and had used force and violence. The employee sued the union for loss of

pay and for damages under state law. He was awarded $10,000.

In upholding the award, the Supreme Court said that Congress did not intend to render the states powerless to act in every labor case covered by federal law and that the power "to impose punitive sanctions" has remained in the state courts. If the states did not have this power, it said, unions would be substantially immune from the consequences of mass picketing or coercion.

The union contended that the right to strike is protected by federal law and cannot be regulated by "the opinions and prejudices" of jurors in state courts. But the court dismissed the argument in concluding that Congress could not have pre-empted the right of state courts to award damages without giving a clearer indication of its intention to do so.

Two members of the court dissented. They felt that allowing diverse state laws to come into play on a matter covered by the Taft-Hartley Act violates the purposes of the federal law, which seeks to establish a uniform labor law that balances the interests of unions, workers and employers. They argued that the majority decision unreasonably broadens the vicarious liability of a union for the acts of its members and saddles unions with a risk not intended by Congress.

Among the possibilities unleashed by the majority opinion, the dissenters said, are these: A series of punitive awards such as this could throw a union into bankruptcy. (There are 29 cases stemming from the same strike pending against the union; total damages claimed are $1.5 million.) And with respect to the effect of the decision on employers they asked this question: "Must we assume that the employer who resorts to a lockout is also subject to a succession of punitive recoveries at the hands of his employees?"

Use of Nonunion Workers Halts College Projects

Work on $20 million worth of construction at Ohio State University was halted last month, when Local 683 of the International Brotherhood of Electrical Workers picketed the project.

IBEW business representative James Greenwalt said the union is protesting award of a $130,000 contract to nonunion electrical contractor Jesse Howard Electric Co. Howard Electric was low bidder on the contract approved April 23 by the Attorney General.

Unfair labor practice charges have been filed by seven contractors and a petition for an injunction is pending.

Work Assignments

NLRB denies lathers the right to contract away Joint Board obligations

The construction industry's efforts to strengthen its voluntary machinery for settling jurisdictional disputes were fortified recently by a National Labor Relations Board decision that prevents a building trades union from circumventing the machinery by contractual arrangement with an employer.

In a case involving a long-standing dispute between lathers and carpenters over acoustical ceiling work, the board ruled that the parties to the dispute are subject to the procedures of the National Joint Board for the Settlement of Jurisdictional Disputes. As a result, a contract clause containing an employer commitment to assign the disputed work to the lathers is ineffective as a device for taking the lathers out from under the Joint Board.

The legal issue was whether the board had the right to conduct a hearing of its own to determine the dispute. (Under Sec. 10 (k) of the Taft-Hartley Act, the board does not conduct a hearing if the parties have agreed to a voluntary method of settlement although it will now keep an unfair labor practice charge filed against a striking union alive until final settlement is reached.) The board reasoned that agreement on a voluntary method did exist, that it could not be defeated by the contract and that therefore the board could not conduct an independent hearing.

The case arose in Long Island, N. Y., and the charges were filed by the Building Trades Employers Association of Long Island and the Acoustical Contractors Association of New York. Lathers claimed the right to the work under the work assignment clause of their contract and contended that the clause and not a Joint Board award in favor of carpenters was controlling.

In overruling the lathers' defense, the board applied a standard legal maxim—contracts are implicitly subject to existing law. As members of the AFL-CIO, it said, both unions are within the orbit of the Joint Board and the contractor had agreed to be bound by assent. Under these circumstances, it pointed out, the law precluded use of the NLRB rather than the Joint Board as the forum for settling the dispute.

The Joint Board was voluntarily established by labor and management. It provides for the orderly settlement of disputes without work stoppages.

OFFICIAL PROPOSALS

Bids: June 26, 1958

Power Authority of the State of New York

NIAGARA POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR THE
FURNISHING AND DELIVERY
OF
GROUNDING CUBICLES
FOR
LEWISTON POWER PLANT
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TUSCARORA POWER PLANT
MOTOR/GENERATORS
SPECIFICATIONS NO. PA-N-25013
NIAGARA CONTRACT NO. NP12

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f.o.b. Lewiston and Tuscarora Power Plant Areas, as applicable, University Siding, New York, of thirteen (13) Generator Grounding Cubicles for the Lewiston Power Plant and twelve (12) Motor/generator Grounding Cubicles for the Tuscarora Power Plant in Lewiston, Niagara County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 26th day of June, 1958, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for twenty five (25) grounding cubicles in accordance with the bidding schedule.

Delivery of grounding cubicles will be required beginning on or before October 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Chl. Hall and Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: June 17, 1958

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A.M. on Tuesday, June 17, 1958

For Throgs Neck Bridge Contract No. TN-10A, Bronx Approach Substructure. The bid must be accompanied by a deposit in the amount of $200,000.00

and

For Throgs Neck Bridge Contract No. TN-10B, Queens Approach Substructure. The bid must be accompanied by a deposit in the amount of $200,000.00.

Bidders may submit bid for either one or both of the above contracts.

Plans, specifications and contract documents may be purchased at the office of the Authority for $30.00, which will not be refunded.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5051) will be received at Fargo, North Dakota until July 1, 1958, for furnishing labor and materials for Stage 03 and 04 additions to Fargo Substation, Missouri River Basin Project, North Dakota. Location near Fargo, North Dakota. Principal items are 12,200 cu. yds. excavation; 800 cu. yds. concrete; 200,000 pounds furnishing and erecting steel structures; Installing two (2) 1,000,000 B.T.U. per hour evaporative cooler units; Installing synchronous condenser; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 1993, Fargo, North Dakota; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: June 26, 1958.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 26th day of June 1958, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following Projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Oneida (Rte. 46 & 49)	FARC 58-70	Durhamville–Rome, SH 1157 Vienna–New London; SH 1159 Proj. DI-526(2); DS-458(2)	1.29	Asphalt Concrete 390' Welded Plate Girder Br.	$33,000 Plans $2	$607,000
Oneida (Rte. 412)	FARC 58-65	Hamilton College–Clinton SH 1610 Proj. DS-473(1)	0.17	9" Cem. Conc. Pavt. 32' Var. Wide = 0.14 Mile Asph. Conc. = 0.02 Mile Misc. Work = 0.01 Mile Prestressed Conc. Beam Br. 103'	$13,000 Plans $2	252,000
DISTRICT No. 3, Earle E. Towlson, Acting District Engineer, 333 E. Washington St., Syracuse, N. Y.						
Cort., Onon., Osw. & Wayne (Rtes. 31, 48, 221, 11, 3 & 29)	RC 58-51	Br. No. 1, SH 9239; Br. No. 2, SH 8259; Br. No. 1, SH 378; Br. No. 2, SH 8420 & Br. E-116, SH 1714	....	Cleaning & Painting 5 Bridges	$1,300 Plans $2	24,000
Cort. (Rte. 26)	FASSH 58-8	Upper Lisle–Willet, Pt. 2 Proj. S-513(1)	4.53	Asphalt Concrete	$35,000 Plans $2	636,000
Onon. (Rte. 20N)	FARC 58-53 RC 58-54	Cazenova–Manlius, Pt. 3, SH 9025 Proj. DS-759(3)	4.39	Asphalt Concrete	$27,000 Plans $2	460,000
Oswego	US 97	Lock O-2, Oswego Canal at Fulton New York	....	New Gates & Lowering Sills	5% of Bid Plans $10	
Tomp. (Rte 13)	FARC 58-62	Cayuta–Newfield, SH 5474 Ithaca–Newfield, SH 5214 Proj. F-560(6)	9.70	9" Cem conc. Pavt. 24'–36' Wide 5 Prestressed Conc. Brs. 60.1', 38.9', 38.5', 46' and 47'	$175,000 Plans $10	3,150,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Liv. & Ont. (Rtes. 5 & 20)	FARC 58-29	Lima–East Bloomfield Pt. 1 and Pt. 2, SH 5142-5041 Proj. DF-343(14)	0.47	Asph. Conc. = 0.45 Mile Misc. Work = 0.02 Mile Prestressed Conc. Bridge 140.4'	$30,000 Plans $2	541,000
Mon.	LOSPRC 58-1	Lake Ontario State Parkway Sect. A, Br. No. 2		Repairing, Cleaning and Painting 3 Span Composite Beam Bridge	$1,600 Plans $2	29,000
Wyom. (Rte. 20A)	FARC 58-66	Varysburg–Warsaw Pt. 2, SH 1349-A Proj. DF-767(3)	0.42	Asph. Concrete 26.5' Span R.C. Box Br.	$6,000 Plans $2	112,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Bldg., 65 Court Street, Buffalo 2, New York						
Erie (Rte. 16)	FARC 58-63	Center Street, SH 9218 Proj. DF-573(4)	3.46	Asphalt Concrete	$30,000 Plans $2	518,000
Erie & Niag. (Rte. 93)	FARC 58-68	Akron–Tonawanda Creek, SH 947 Griswald Street–Bratts Bridge, SH 660 Lockport–Tonawanda Creek, SH 749 Proj. S-685(2)	3.31	Asph. Conc. = 3.19 Mile Misc. Work = 0.12 Mile 2 Prestressed Conc. Brs. 64' and 146' 1 Comp. WF Beam and Girder Br. 162.3'	$70,000 Plans $5	1,272,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clint.	FISH 58-23 FIC 58-1 FARC 58-5	Int. Rte. 502, Sect. 7B-2 (Rugar St. To Cumberland Head Rd.) Plattsburg–Mooers Pt. 2, SH 259 Proj. I-IG-1119(16), F-57(64)	4.70 0.69 Acc.)	Asph. Conc. = 14.35 Mile Misc. Work = 0.04 Mile 5 Hy. Sep. Prestressed Conc. Beams 148.4', 284.5', 249.2', 232.8' & 246.5' 1 Twin R.C. Box Bridge 36'	$440,000 Plans $20	8,009,000
Jeff. (Rtes. 11 & 37)	FARC 58-46	Watertown–Philadelphia Pt. 1, SH 5651 Watertown–Theresa Pt. 1, SH 565 Proj. DU-DF-572(5)	1.07	Asphalt Concrete	$16,000 Plans $3	289,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Dutchs (Rte. 9)	FARC 58-61	Poughkeepsie–Hyde Park, SH 453, Vanderbilt SH 9004; Hyde Park–Staatsburg SH 5135 Proj. DF-322(6)	2.75	Asphalt Concrete	$15,000 Plans $2	268,000
Orange (Rte 9W)	RC 58-60	West Point Military Reservation–Cornwall Pt. 1, SH 8560	0.18	9" Cem. Conc. Pavt. 24' Var. Wide (Access Drive)	$3,000 Plans $2	53,000
Orange (Rte. 9W)	RC 58-3	West Point Military Reservation–Cornwall Pt. 1, SH 8560; Cornwall–West Point Pt. 3, SH 5573; West Point–Central Valley SH 5328–5328A; Crystal Lake–State Hy. 8078, SH 9328 and Ft. Montgomery–West Point Jct., SH 8526	9.16	Beam Type Guide Railing	$1,000 Plans $2	80,000
Orange (Rte 32)	FARC 58-55	Vails Gate–Newburgh City Line, SH 9033 Proj. DF-532(12)	2.99	9" Cem. Conc. Pavt. 24' Wide	$45,000 Plans $3	830,000
Ulster (Rte. 209)	FARC 58-47	Kingston–Ellenville, Pt. 2, SH 305 Kingston–Ellenville, Pt. 1, SH 230 Proj. DF-395(4)	7.33	Asphalt Concrete	$40,000 Plans $2	710,000
West. (Rte. 9)	FARC 58-58	Broadway–Hastings–Dobbs Ferry–Mt. Pleasant–Tarrytown–North Tarrytown, SH 9206 Proj. DF-682(8)	2.25	Asphalt Concrete	$7,000 Plans 92	133,000
West.	FICWE 58-1 FIBT 58-2 FARC 58-67	Int. Rte. Conn. 520 Cross West, Exp'y. (Elmsford Sect.); N.Y. State Thruway, Hudson Sect., Sub. 10 (Elmsford Interchange); Tarrytown–White Plains Pt. 1 SH 503 and Access Ramps, Cross Sts., SH 9246 and SH 5571 Proj. I-1101(6); U-358(9)	3.73 (5.68 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' Var Wid = 3.73 Mi. 9" Cem. Conc. Pavt. Var. Wide (Acc. etc.) = 4.24 Mi. Asph. Conc. (Acc. etc.) = 1.44 Mi. 11 Comp. WF Beam Brs. 233.1', 289.7', 1,076.2', 157', 253.1', 171.4', 204.8', 132.8', 286.8', 283.1', and 222' 2 Closed R.C. Box Brs. 23.6' and 33.7'	$750,000 Plans $20	13,647,000
DISTRICT No. 9, J. C. Fredrick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 17 & 11)	FARCC 58-59	Binghamton City: Court Street, FAC 48-7 Proj. DF-344(23)	0.86	Asphalt Concrete Ty. 2A	$6,000 Plans $2	109,000
Del. (Rte. 8)	FARC 58-40	Deposit–Masonville, SH 1888 Proj. DS-514(1)	7.81	Asphalt Concrete	$39,000 Plans $2	705,000
Otsego & Schoh. (Rte. 165)	FARC 58-64	Roseboom–Janesville Pt. 2, SH 9234 Roseboom–Hanesville Pt. 1, FASSH 54-4 Proj. DS-412(2)	4.15	Asphalt Concrete	$50,000 Plans $3	899,000
DISTRICT No. 10, M. E. Gould, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx	FICBE 58-3 FITNE 58-1	Int. Rte. Conn. FAI 513 (Cont. No. 1) Cross Bronx Expressway and Throgs Neck Expressway Proj. I-1112(5)	2.53	Demolition of Buildings	$10,000 Plans $3	192,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 135 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON

SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: June 11, 1958.

Delaware River Port Authority of the Commonwealth of Pennsylvania and the State of New Jersey

Administration Building
Camden, New Jersey
PROPOSAL

Sealed bids will be received for furnishing snow removal equipment and catch-basin cleaning equipment, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Benjamin Franklin Bridge Plaza, Camden, New Jersey *until* 2:30 P.M., Eastern Daylight Saving Time, Wednesday, June 11, 1958, at which place and time they will be publicly opened and read by the Authority. The equipment on which bids are requested is as follows:

ITEM No. 1: One new gasoline-operated Snogo, Model MTR with turret loading and casting chute mounted on a new gasoline-operated Four Wheel Drive (FWD) Model KS Snogo Special Chassis, 24,000 G.V.W. Unit to be equipped with turning lights, front and rear, and must comply with Pennsylvania and New Jersey Motor Vehicle Codes. The entire unit shall be finished in DuPont Dulux Automotive Grey, No. 93-23947.
Exclude Pennsylvania Selective and Use Tax.
Exclude Federal Tax.
The price bid shall include delivery to the Maintenance Building, Philadelphia Plaza, Philadelphia, Pennsylvania of the Walt Whitman Bridge.
The bid shall state the delivery time required.

ITEM No. 2: One new gasoline-operated Walter Snow Fighter, Model FGR; 225 h.p.; 42,000 G.V.W. 12:00 x 24 fourteen ply tires, dual rear wheels; 138-inch wheel base; cab to rear axle dimension, 96 inches, complete, including the following snow plow and spreader equipment:
Frink Model 3611-PRT power reversing snow plow, 36" x 11'6" moldboard; deflector shield, power hydraulic lift.
Frink SWR—12 right-hand wing with power hydraulic controls.
Good Roads Model HY hydraulic, chassis mounted spreader, 8 cubic yard capacity, dual spinner discs, individual speed control of the conveyor and spinner, hinged screens for the top of the hopper, tarpaulin, rear fenders, splash shield, catwalks with railings.
Unit to be equipped with turning lights, front and rear, and must comply with Pennsylvania and New Jersey Motor Vehicle codes. The entire unit shall be finished in DuPont Dulux Automotive Grey, No. 93-23947.
Exclude Pennsylvania Selective Sales and Use Tax.
Exclude Federal Tax.
The price bid shall include delivery to the Maintenance Building, Philadelphia Plaza, Philadelphia, Pennsylvania of the Walt Whitman Bridge.
The bid shall state the delivery time required.

ITEM No. 3: One, new, Model "P" Netco catch-basin cleaner with pneumatic controls, fully enclosed cab with doors, one 1½ cu. ft. "orange peel" bucket and one 13" x 19" "clam shell" bucket, complete. The price bid shall include removal of one dump truck body from a Port Authority truck and installation of the catch-basin cleaner by four "U" bolt clamps to permit easy removal of the catch-basin cleaner and replacement of the dump truck body. The dump truck body shall remain the property of the Delaware River Port Authority. The equipment supplied shall be finished in DuPont Dulux Automotive Grey, No. 93-23947.
Exclude Pennsylvania Selective Sales and Use Tax.
Exclude Federal Tax.
The price bid shall include delivery to the Maintenance Building, Philadelphia Plaza, Philadelphia, Pennsylvania of the Walt Whitman Bridge.
The bid shall state the delivery time required.

Separate prices must be stated for each item.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids; to award the work in part or in whole; and to award the work to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
Joseph K. Costello
May 21, 1958 Executive Director

U. S. Government

Department of Commerce, Bureau of Public Roads, June 2, 1958. SEALED BIDS will be received at the office of the Acting Regional Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., D.S.T., JUNE 30, 1958, for Contract 2, Piers and Fenders for Channel Spans, Woodrow Wilson Memorial Bridge over the Potomac River. The pier construction under this contract consists of two land piers on the Virginia Shore, the lower portions of two bascule piers, and six other river piers, and is partially located in the City of Alexandria, Va., partially in the District of Columbia, and partially in Prince Georges County, Maryland. Alternate bids are to be submitted on alternate designs of five of the river piers. The approximate quantities of the more important items are 15,000 cu. yd. of Excavation, 50,000 lin. ft. of Piling for piers (various sizes), 20,000 cu. yd. of Concrete, 1,150,000 lb. of Reinforcement Steel, 500 cu. yd. of Stone Masonry, 20,000 lin. ft. of Creosoted Timber Piling for fenders, and 100 MBM of Creosoted Timber for fenders. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above. R. S. DuBois, Acting Regional Engineer.

Department of Commerce, Bureau of Public Roads, May 26, 1958. SEALED BIDS will be received at the office of the Acting Regional Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., D.S.T., JUNE 30, 1958, for Contract 3A, superstructure steelwork, machinery and electrical equipment for the channel spans of the Woodrow Wilson Memorial Bridge over the Potomac River. The channel spans comprise a four leaf bascule span and four approach spans on each side of the bascule span, having a total length of 1,490 ft. A portion of this length is located in each of the following: City of Alexandria, Va., District of Columbia, and Prince Georges County, Maryland. The approximate quantities of the more important items are 7,100,000 lb. of structural carbon steel, 1,030,000 lb. of structural alloy steel, and 450,000 lb. of machinery. The last item and the item of electrical equipment will be lump sum items. Minimum wage rates have been fixed as required by law. Plans, specifications and proposal forms are available upon request at the address given above. R. S. DuBois, Acting Regional Engineer.

D.C. GOVT., DEPARTMENT OF HIGHWAYS, D.C., May 26, 1958. SEALED PROPOSALS will be received in Room 404, 499 Penna. Ave., N.W., Wash. 1, D.C., until 2 PM, EDT, June 23, 1958, and then publicly opened and read for Grading the Anacostia Freeway, East Capitol Street to Pennsylvania Avenue (Federal Aid Project No. I-05-1(6)), consisting of approximately 200,000 lin. ft. of "Vertical Sand Drains", 270,000 cu. yds. of "Borrow for Embankments, Overload, and Counterberms, Furnished and Placed", 119,000 cu. yds. of "Unclassified Excavation" and 45,000 sq. yds. of "Stabilized Soils Base Course, Twelve (12) Inches in Compacted Depth". Proposal forms, plans and specifications obtainable from Supervisor, Bid & Contract Section, Procurement Office, D.C., Rm. 404, 499 PA. Ave., N.W., upon deposit of a certified check for $20.00 per set, payable to D.C. Treasurer. (phone NA 8-6000, Ext. 2378).

OFFICIAL PROPOSALS

Bids: June 18, 1958

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:
Until 11 A.M. on Wednesday, June 18, 1958
For Throgs Neck Bridge Contract No. TN-10C, Bronx Approach Superstructure Steel. The bid must be accompanied by a deposit in the amount of $250,000.00
and
For Throgs Neck Bridge Contract No. TN-10D, Queens Approach Superstructure Steel. The bid must be accompanied by a deposit in the amount of $250,000.00.
Bidders may submit bid for either one or both of the above contracts.
Plans, specifications and contract documents may be purchased at the office of the Authority for $30.00, which will not be refunded.

OFFICIAL PROPOSALS

Bids: July 10, 1958.

The South Carolina State Ports Authority Charleston, South Carolina Construction of Banana Pier and Columbus Street Terminal

Sealed bids for the construction of a banana pier and Columbus Street Terminal will be received at the office of the South Carolina State Ports Authority, 1 Vendue Range, Charleston, South Carolina until 11:00 A.M. (EST), Thursday, July 10, 1958 at which time there will be a public opening of bids.
The work includes but is not limited to the demolition and removal of existing structure and construction of 436 foot by 300 foot re-inforced concrete marginal wharf supported on prestressed concrete piling. A 24 foot by 138 foot re-inforced concrete lead-in shed supported on prestressed concrete pile and covered with structural steel frame and galvanized steel siding and roof. Also, miscellaneous grading, paving, drainage, piping, fencing and other necessary items.
The work also includes but is not limited to the construction of the Columbus Street Terminal which consists of demolition and removal of existing structure. The construction of a transit shed 607 ft. by 250 ft. with a loading dock 607 ft. by 21 ft. and a reinforced concrete pier apron 747½ ft. by 46 ft., all on prestressed concrete piles. The construction of a transit shed 910½ ft. by 250 ft. with a loading dock 910½ ft. by 21 ft. and a concrete pier apron 1,112½ ft. by 46 ft. all on prestressed concrete piles. The transit sheds will be steel frame with 20 ft. high concrete tilt-up walls with combination corrugated aluminum and corrugated plastic walls up to the eaves. The roof will be built-up roof with insulation over a precast concrete roof slab. Also included is a railroad maintenance shop 50 ft. by 54 ft. on poured in place piling and with 1700 square feet of office and locker room area; fork lift maintenance building 75 ft. by 160 ft. on poured in place piling; concrete block guard office 18 ft. by 27 ft; approximately 38,500 square yards of asphalt paving; 12,200 linear feet including switches of railroad trackage; 7,900 linear feet of corrugated steel storm drain sized from 12 to 24 inches; 10,500 linear feet of water piping sized from 6 to 10 inches; 1,250 linear feet of 6-inch sanitary sewers; 3,660 linear feet of chain link fencing; and other necessary items.
Plans and specifications may be obtained from Lockwood Greene Engineers, Inc., Spartanburg, South Carolina and Palmer & Baker Engineers, Inc., Mobile, Alabama upon application for one set of documents and pre-payment of five hundred ($500.00) dollars. Thse who have submitted a bid on the contract will receive a refund of the deposit for the return of the documents. Those not bidding will receive a refund less cost of printing upon return of documents.

SOUTH CAROLINA STATE PORTS AUTHORITY
Cotesworth P. Means, Chairman

Bids: June 11, 1958.

Contractors' Notice of Texas Highway Construction

Sealed proposals for constructing 14.502 miles of Gra., Strs, Shell Conc. Base & Hot Mix Asph. Conc. Pavt. from FM 1406 to SH 61 on Highway No. IH 10 FM 1724 covered by I 10-8(24)821, in Chambers County, will be received at the Highway Department, Austin, until 9:00 A.M., June 11, 1958, and then publicly opened and read.
This is a "Public Works" Project, as defined in House Bill No. 54 of the 43rd Legislature of the State of Texas and House Bill No. 115 of the 44th Legislature of the State of Texas, and as such is subject to the provisions of said House Bills.
This is also a Federal-aid project located on the Interstate Highway System and is subject to the provisions of the Federal-Aid Highway Act of 1956. No provisions herein are intended to be in conflict with the provisions of said Acts.
Minimum wage rates for this project have been predetermined as required by Law and are set forth in the bid Proposal.
Legal holiday work shall be paid for at the regular governing rates.
Plans and specifications available at the office of D. W. Syphrett Resident Engineer, Anahuac, Texas, and Texas Highway Department, Austin. Usual rights reserved.

OFFICIAL PROPOSALS

Bids: June 19, 1958

Advertisement for Proposals for Channel Improvement in Tailrace Area at Barnhart Island Power Plant St. Lawrence County, New York Specifications No. PA-5-11038 St. Lawrence Contract No. 47

NOTICE TO CONTRACTORS: THE POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for Channel Improvement in Tailrace Area at Barnhart Island Power Plant, St. Lawrence County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 19th day of June, 1958, at the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated quantity of the principal item of work consists of 3,050,000 cubic yards of common excavation in the channel of the St. Lawrence River below the Barnhart Island Power Plant.

All work shall be completed on or before July 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the 18th Floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Twenty Dollars ($20.00) per initial set of contract documents, and Ten Dollars ($10.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Chl. Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the maximum price bid for any bid schedule.

The right is reserved to make award on either one of the schedules, and to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: June 24, 1958

Davenport Bridge Commission Contract No. 2

SUPERSTRUCTURE FOR THE EXPANSION AND IMPROVEMENT OF THE IOWA-ILLINOIS MEMORIAL BRIDGE Over the Mississippi River Between Bettendorf, Iowa and Moline, Illinois

INVITATION TO TENDER

The Davenport Bridge Commission of the City of Davenport, Iowa, invites proposals for the construction of the superstructure, toll plaza and administrative facilities for the expansion and improvement of the Iowa-Illinois Memorial Bridge over the Mississippi River between Bettendorf, Iowa, and Moline, Illinois. Sealed proposals for the Work described below will be received by the Davenport Bridge Commission in the office of Mayor, City Hall, Davenport, Iowa, until 10:00 A.M. Central Standard Time, June 24, 1958, at which time the proposals will be publicly opened and read.

This Contract No. 2 consists of the furnishing of all materials for and the construction of all metalwork in the superstructure and the paving of all roadways, curbs and safety walks between the abutment in Bettendorf, Iowa, and the abutment in Moline, Illinois, for the new two-lane structure and reconstructed toll plaza area at the Moline Anchorage, together with the furnishing and installing of the complete roadway lighting system on the new structure and the approach ramps and streets, alterations to the existing aerial and navigation lighting, the completion of the upper portions, above Line Z-Z shown on the Plans, of both the Bettendorf and Moline Anchorages including the finishing of the interior of the New Moline Anchorage and the remodeling of the existing Moline Anchorage for administrative facilities, and the reconstruction and expansion of the canopies and houses on the toll plaza (exclusive of toll registers), all "ready to receive traffic", and other incidental construction, all for a second two-lane highway bridge adjacent to and approximately 72 feet downstream from the existing Iowa-Illinois Memorial Bridge, throughout similar in construction to such existing bridge, together with improvements of the approaches at the entrances to the bridge and the widening and improvement of the toll plaza and administrative facilities at the Moline Anchorage, to provide upon completion of the entire project, together with the existing bridge, a four-lane divided highway facility approximately 5505 feet in length. All work is to be accomplished without interruption to the two-lane traffic on the existing bridge.

A fuller description of the work to be done and of the requirements, provisions and details thereof is given in the Contract Drawings and Specifications, copies of which are on display in the office of the Mayor of the City of Davenport, Iowa; in the office of the Resident Engineer, 1429 State Street, Bettendorf, Iowa; and in the offices of the Engineers, Modjeski and Masters, Sixth Street at Forster, Harrisburg, Pennsylvania, or may be obtained from the latter office upon deposit of Twenty Dollars ($20.00) per set. Deposit checks shall be made payable to Modjeski and Masters.

Deposits of all bona fide Bidders will be refunded upon return of documents in good condition within ten (10) days after receipt of bids. All other deposits will be retained.

No proposal will be received unless accompanied by a certified check satisfactory to the Commission drawn upon a National Bank organized under the laws of the United States or upon a State or Savings Bank or Trust Company organized under the laws of the State of Iowa, and in any case having an office or place of business in the State of Iowa, and payable to the order of the Davenport Bridge Commission for the sum of Two Hundred Twenty-five Thousand Dollars ($225,000) as security for the proper execution of the Contract. Such check must not be enclosed in the sealed envelope containing the bid but must be delivered to the office of the Mayor. Receipt for the deposit will be given by the Commission.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; to award the Contract only to those experienced in this class of work and to the Bidder whose proposal is deemed by the Commission to be most advantageous to the public interest. The provisions of the above Invitation to Tender are made for the benefit of the Commission and no right shall be deemed to accrue to any person making a proposal by reason of the submission of any proposal hereunder or by the waiver or non-enforcement of any provision or requirement of the Invitation.

DAVENPORT BRIDGE COMMISSION
DAVENPORT, IOWA
Secretary

Dated: May 20, 1958
(Mailing Address:
P.O. Box 719
Davenport, Iowa)

Bids: June 18, 1958

Construction of Trunk and Lateral Sewers in Town of Greece, Monroe County, New York

NOTICE IS HEREBY GIVEN that pursuant to resolution of the Town Board of the Town of Greece, Monroe County, New York, sealed proposals will be received on the 18th day of June, 1958, at 2:30 o'clock P.M. at the Town Hall, 2505 Ridge Road West, Rochester 15, New York, for the furnishing of all materials, tools, equipment and labor for the construction of sanitary trunk sewers and appurtenances in Sanitary Sewer District No. 1, Extension No. 27 in accordance with the contract documents therefor, prepared by Nussbaumer, Clarke & Velzy, Consulting Engineers, and all of which are on file with the Town Clerk, 2505 Ridge Road West, Rochester 15, New York, also at the office of Nussbaumer, Clarke & Velzy, 327 Franklin Street, Buffalo 2, New York. One (1) copy of said proposed documents may be obtained upon payment to the order of Gordon A. Howe, Supervisor, of a certified check for $35.00.

Each bid must be accompanied by security in an amount not less than five percentum (5%) of the amount of the bid in the form and subject to the conditions provided in the Information for Bidders contained in the Contract Documents.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

N. RAYMOND KRAFT,
Town Clerk

OFFICIAL PROPOSALS

Bids: August 4, 1958.

Government of Iraq Electrification of Central Euphrates Zone Contract No. 21 Power Line Carrier Equipment

The Development Board and Ministry of Development of the Government of Iraq invite tenders from qualified firms for the supply, delivery and erection of the Power Line Carrier Equipment and Accessories for the Central Euphrates Zone electrical system.

Full information regarding this tender can be obtained on and after May 5, 1958 until July 7, 1958, from Embassy of Iraq—Washington or Messrs. Electrobel-Traction et Electricite, 1, Place du Trône Brussels, Belgium.

All Tender Documents are to be submitted in English to the Ministry of Development, on or before 12 noon, local time, on August 4, 1958.

Minister of Development

EMPLOYMENT OPPORTUNITIES

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Highway Engineers—Highway Engineers with a minimum of 3 years experience. Excellent opportunity with established consulting engineering firm in Middle West. P-7909, Engineering News-Record.

Graduate civil or architectural engineer with professional license or equivalent qualifications. Substantial experience in building design and construction or in structural research together with ability to prepare technical publications. Position open is that of design engineer with a National trade association in Chicago. Good starting salary. Please furnish photo and complete resume, including salary desired, in first letter. P-8017, Engineering News-Record.

General Superintendent—Mid-West General Construction firm engaged in Commercial, Industrial, Public Works, Sewers, Bridges, Dams and Reservoirs has opening for qualified general superintendent. Applicants should have experience and be capable of coordinating all types of above work. Complete experience and education data, references and salary expected should be furnished in first reply. P-8023, Engineering News-Record.

Wanted—Structural Designers and Draftsmen experienced on reinforced concrete and structural steel work. Engineering Firm San Francisco, Calif. Write stating age, education and experience. P-8030, Engineering News-Record.

Have opening for several recent Civil Engineer Graduates with military obligations completed who desire to learn the construction business. Must be ambitious, aggressive, use no intoxicants, preferably single, willing to start in the field on industrial buildings and heavy construction, and willing to move. We operate throughout Kansas and adjacent states. Our organization offers excellent opportunity for advancement. We pay top wages. Martin K. Eby Constr. Co., Inc., P. O. Box 1679, Wichita, Kansas.

Concrete Engineer for mix design. Capable of supervising Material Testing Laboratory for work in southern Idaho. Ample relocation allowances. Send resume to F. C. Torkelson Company, Box 185, Idaho Falls, Idaho.

Estimators—Engineers: Experienced in buildings and general contracting. Permanent positions with General Contractor operating nationwide doing sizable jobs. Salary commensurate with experience and ability. Location—Texas. Give full details covering education, experience, references, salary and personal data. P-8091, Engineering News-Record.

(Continued on the following page)

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.
June 12th issue closes June 2nd

DISPLAYED RATE:
The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.
An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.
Subject to Agency Commission.

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Position Wanted ads take ½ of above rate.
Box Numbers—count as 1 line.
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Not subject to Agency Commission.

• POSITIONS VACANT
(Continued from preceding page)

Associate and Assistant Professors for fields of advanced dynamics, advanced strength, and elasticity. Also have opening for graduate student as half-time instructor. Engineering Mechanics Dept., Kansas University, Lawrence, Kansas.

Field engineering for mosquito abatement district. Experience in dragline and dozer work, eligible for Illinois registration. Liberal vacation and other benefits—salary dependent on qualifications and experience. Apply P.O. Box 30, Harvey, Illinois.

Technical Service Engineer. Civil Engineer for technical field work with customers of major cement producer. Age 24-30. Salary open, expenses, company car. Forward resume. P-8112, Engineering News-Record.

Hydraulic Engineer—Graduate civil engineer, 30-40, with 5 or more years experience in hydraulic engineering. Duties involve preparation of technical literature promoting the use of concrete in dams, flood control structures, culverts, and allied fields. Will contact state and federal agencies. Salary open. Headquarters, Chicago, with some travel. P-8152, Engineering News-Record.

City Engineer—Age 30-55; registered, graduate civil engineer, eight years of experience in city engineering or related work with two years of administrative experience. City 70,000 population. Salary $7602.60-$9287.-40. Please submit complete education and experience history with letter of application to Personnel Officer, Municipal Building, Hamilton, Ohio.

• EMPLOYMENT SERVICE

Salaried Personnel $5,000-$30,000. This nationwide service successful since 1927 finds openings in your field. Sells your abilities; arranges contacts. Present position protected. Write for details—Jira Thayer Jennings, P.O. Box 674, Manchester, Vermont.

• POSITIONS WANTED

Project Manager or Superintendent for architect or contractor available. Recently completed luxury type 325 room El San Juan Hotel. Working knowledge Spanish and French. Also experienced heavy construction and housing. Age 44, single. Airmail replies to: Allen McSherry, P. O. Box 1215, San Juan, Puerto Rico.

Job Office Manager—12 years experience cost, payroll, paymaster, personnel, purchasing, assistant to resident Engineer. PW-8010, Engineering News-Record.

Excavation Supt.—Engr.—Foreman or Drilling & Blasting Engr.—8 yrs. exp. Heavy Rock Excavation. Engrng. Background Stripping or Quarry preferred. United States or Overseas. PW-8092, Engineering News-Record.

Chief Estimator, Graduate Engineer, age 55. Acted as chief estimator with full responsibility for preparation of competitive bids on public building jobs of all types and sizes for many years. Seeks connection with outfit which is willing to pay for top ability and experience. PW-8144, Engineering News-Record.

Architect-Engineer's manager 22 yrs. exp. handling business getting, contracts, field supervision, closing, age 45 six yrs. with present employer desire change. PW-8120, Engineering News-Record.

Civil sanitary engineer, B.S.C.E., 43. Construction management, investigations, design, reports. PW-8114, Engineering News-Record.

CIVIL ENGINEERS

Vacancy due to a promotion in Madison, Wis. Graduate engineer with some experience to begin in Engineering Dept. at about $455 a month, **unless** special arrangements can be made for a higher entrance salary due to qualifications. Annual and longevity increases to $572. Office and field work in design and construction of sewer, water, street, sidewalk and curbs. Possession of Engineer-in-Training Certificate required. No residence restrictions for U.S. citizen to begin work. Wisconsin Retirement Fund and Social Security benefits. Personnel Dept., 404 City-County Bldg., Madison 9, Wis.

• POSITIONS WANTED

Contractor's engineer and/or superintendent. B.S.C.E. 16 years diversified experience office and field from bids to completion in water distribution, sewage collection, and treatment facilities. PW-8113, Engineering News-Record.

Cost Engineer—33, graduate Civil Engineer. Reg. in Texas. 2½ years of cost engineering experience for general contractors plus 4½ years of varied engineering experience, and 2 completed foreign contracts. Prefer foreign assignment with general contractor or A&E. Resume on request. PW-8116, Engineering News-Record.

Structural Engineer: 27; M.C.E. Columbia U.; P.E.; three years diversified design and research experience; architectural interests. Seeks position in structural-architectural firm handling churches, shells, advanced architectural schemes. New York City preferred. PW-8153, Engineering News-Record.

Mechanical Superintendent. 10 years exp. on large projects. Have Calif. contractors license for plumbing—steam boilers. PW-8151, Engineering News-Record.

Engineer Struct., Overseas, MIT. MS. PE 29. Design, Reinf. & Prestressed Conc. Some Supervis. Administration. PW-8158, Engineering News-Record.

Construction Superintendent & Engineer. Twenty-five years of practical experience on all types of heavy construction. Bridges, Highways, Marine, also Refineries and Stations, clean record and producer, excellent references, available shortly, prefer West coast or Western states location. PW-8161, Engineering News-Record.

Ass't. Supt. Heavy Const.—32, 10 yrs. diversified engineering and field experience on highways and bridges. Presently Ass't. Project Engineer on finals of $5-Million Air-Force facility. Desires position with future with private firm. PW-8094, Engineering News-Record.

Construction Engineer, BSCE, 34, 1 year structural design, 6 years field engineering & contract management in industrial construction. PW-8083, Engineering News-Record.

Supt. Const. 20 yrs. Institutional, Industrial, Commercial. Engineer. Anywhere. PW-8072, Engineering News-Record.

Construction Superintendent or manager qualified, 25 yrs. experience. G.M.C. Lucas, 2225 Wisteria, Sarasota, Fla. RI 79843.

WANTED

Experienced Resident Engineer for steam electric station construction. Knowledge of construction and of mechanical installations desirable. Capable of coordinating project and willing to work in our Chicago office between field assignments. Submit complete resume to:
PIONEER SERVICE & ENGINEERING CO.
231 S. La Salle St. Chicago 4, Ill.

DESIGNERS and DETAILERS

Experienced in the design or detailing of Erection Methods for Bridges and Structures. Write stating age, education and exper. Engineering office located New York City. Reply:
P-7501, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

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(Classified Advertising)
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1—**Le Roi** 105 Portable Air Compressor Mtd on 2 Pneumatic Wheels.....ea. $1,250

6—**Le Roi** 105 Portable Air Compressor Mtd on 2 Pneumatic Wheels.....ea. $1,850

1—**Kiesler** 2 yd Clamshell Bucket Refaundler...$900

1—**Bay City** 1 yd Dragline Bucket Rebuilt....$950

1—**Sullivan** Air Hoist 2000# Capacity.....$450

1—**Waukesha** 4 cyl Power Unit Gas.....$350

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1400 P&H 4 yd. Electric Shovel
2400 Lima Medium H. L. Shovel
1201 Lima 2-½ yd. H. L. Shovel
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750 Reich Truck Mounted Rotary Air Drill
Mayhew Truck Mounted Rotary Air Drills
Truck Cranes—Link Belt, P&H, Bay City
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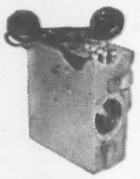

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Cities, Too, "Auto" Build Now

PREVIOUS EDITORIAL EMPHASIS has hit upon the construction industry's opportunity to sell its services among private builders, commercial and industrial (ENR May 15, p. 202). It has been assumed that public works agencies at the municipal levels of government are quite anxious at present to step up their construction programs. But are they?

As reported in this issue, the backlog of municipal projects, planned but not yet under contract, continues to mount up. Federal aid in loans and grants for planning and construction is not being spent fully as fast as it might be. Prices local governments would get by taking bids today should be attractive. The price of money is about as low as can be expected. And the need for future community projects of all types grows by the minute, as population experts constantly warn us.

Certain federally aided state and local programs are moving along at a good rate, as pointed out on p. 21. The biggest of all of these, the highway program, is not even discussed; it is really rolling, as pointed out here in a May 22 editorial. Other programs are moving more slowly; urban renewal is the slowest.

Cities, too, "auto" build now. Every local government ought to look to its backlog of planned projects; look at the bond market and current bid prices; and look at its future needs. That year 1965, beyond which population forecasters see a fast growing need for community facilities, is actually less than eight years away.

Make Depreciation Realistic

IT SHOULD BE BASIC in a private enterprise economy such as ours to make it easy and profitable for industry to replace obsolete or worn-out plant and machinery. Unhappily, this is not the case, and the principal fault lies in rules governing depreciation allowances, which are themselves obsolete.

Two reforms are necessary. The depreciation period should be shortened to accord with the useful rather than the physical life of the facility. And the allowable total amount of depreciation should have some realistic relation to replacement cost of the facility.

As matters now stand, fast tax writeoffs are too generally considered as a stimulant to investment in a period of recession or emergency of some kind. The idea is to turn them on and off with the times. And replacement costs, the logical basis for figuring depreciation, are opposed by accountants as too difficult to handle and by the federal Treasury as too costly in terms of deferred revenue.

Broadly, therefore, it can be said that our depreciation policy is too rigidly tied to tax revenue needs and to convenience in administration. It should be focused on the stimulation of investment in new facilities.

Tax legislation now being considered by Congress has so far concentrated on the emergency uses to which fast writeoffs can be put, rather than on a permanent reform. Proposals by Sen. Homer Capehart and by the National Machine Tool Builders' Association are both confined to investments made before June 30, 1959. After that, presumably, industry must wait for another emergency before it can take whatever advantage there is in fast writeoffs. This is shortsightedness. If faster writeoffs are desirable, they should be made permanent.

Actually, a more important consideration is that of replacement cost. When a steel plant, for example, has been depreciated on its original cost of $100 a ton, and then needs to be replaced with a $400 a ton facility, it may not be replaced. Such obsolescence as this kind of policy implies is something that the U. S. cannot afford.

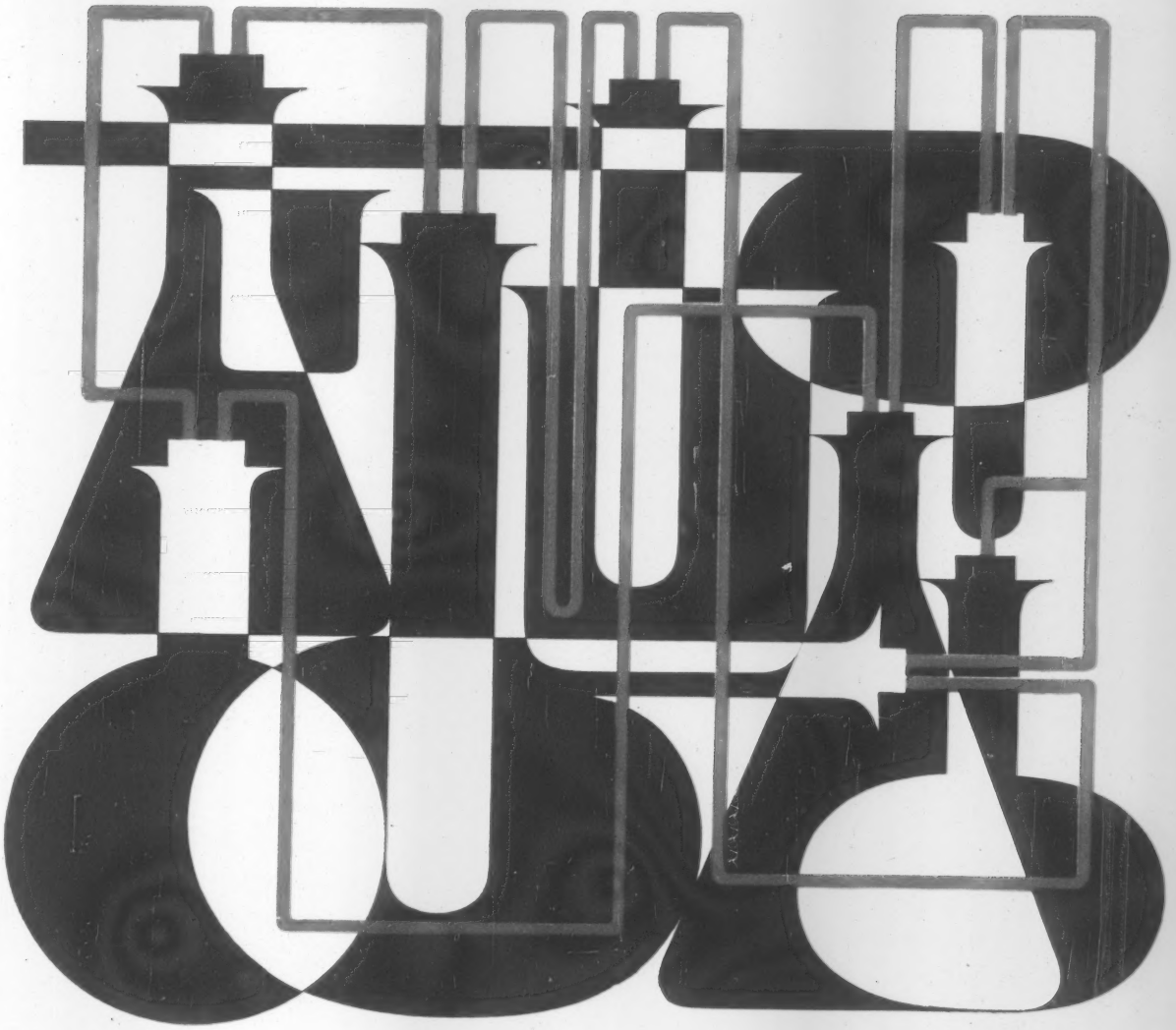
The current debates in Congress indicate that nothing more than makeshift reforms are likely to take place at this session. In as much as the construction industry has a vital interest in a more realistic depreciation policy it should not be satisfied with this disposing of the question. A permanent reform of depreciation policy is badly needed, and the construction industry should miss no opportunity to press for it.

Clay Pipe Progress

RESEARCH, so often associated these days with development of the new, has an equally important function in the continuing improvement of the old and accepted products. Among these latter, clay pipe, whose antecedents date back to ancient times, is certainly one of the most familiar. It is, therefore, of significant interest to note that National Clay Pipe Manufacturers, Inc., a trade association in an important segment of the construction industry, has a fine new research laboratory at Crystal Lake, Ill., dedicated only a few weeks ago.

The sole aim of the laboratory will be to improve the serviceability of vitrified clay pipe and, thereby, its contribution to safer public health. Thus, one of its principal objectives will be to assure better joints, either with such existing materials as rubber or thermo-plastic or thermosetting resins or with entirely new materials that the laboratory may develop. Studies of the fundamental structure of ceramic materials will be undertaken in the interest of increasing the load bearing characteristics of clay pipe, while investigations of such basic factors as the chemistry of sanitary sewage will be carried on in the interest of durability and good flow characteristics.

Best of all for the user of clay pipe, the end objective of all this work is the establishment of national specifications, which in the words of NCPM, will be designed to "guarantee the continuing high level of quality of vitrified clay pipe." In setting up and financing this research laboratory, NCPM has set in motion a facility from which the entire nation can benefit.



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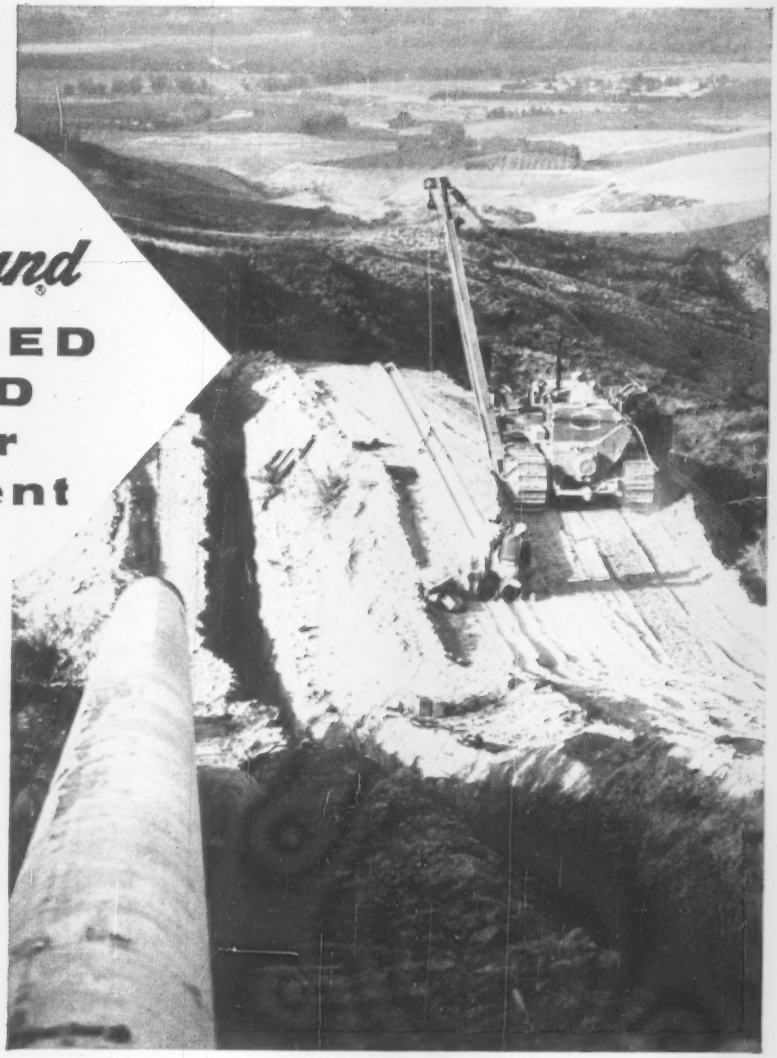

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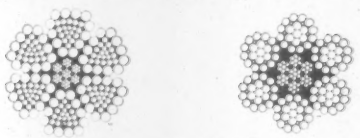

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